



ASHESI UNIVERSITY COLLEGE

**WHAT USER EXPERIENCE CONSIDERATIONS WILL
GO INTO THE DESIGN OF A GOVERNMENT PORTAL
IN GHANA?**

ABIGAIL SEFAKOR DZOMEKU

2014

THESIS

ASHESI UNIVERSITY COLLEGE

**WHAT USER EXPERIENCE CONSIDERATIONS WILL GO INTO THE
DESIGN OF A GOVERNMENT PORTAL IN GHANA?**

By

ABIGAIL SEFAKOR DZOMEKU

Thesis submitted to the Department of Computer Science Ashesi
University College. In partial fulfillment of the requirements for the award
of Bachelor of Science degree in Computer Science

April, 2014

DECLARATION

I hereby declare that this thesis is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:.....

Candidate's Name:.....

Date:.....

I hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on supervision of thesis laid down by Ashesi University College.

Supervisor's Signature:.....

Supervisor's Name:.....

Date:.....

ACKNOWLEDGEMENTS

This is dedicated to God for I am eternally grateful for His support and guidance during this project.

To my parents who have been of tremendous support and encouragement. To my siblings Delase, Seyram and Setor for inspiring me in ways they did not know.

Also to my supervisor; Dela Kumahor, whose expertise in this field increased my knowledge and made me a better User Experience designer.

Then to my friends; Gloriel Addison, Oluwaremilekun Susan Olaniyi, Anna Korkor Amegatcher, Jessica Asantewaa Amofo, Oluwatonilola Leah Ayonrinde, Antoinette Doku, Andrew Bimpong, Leonard Nii Aboe Annan and Daniel Botchway whose wise words and counsel helped clear my head several times when I was confused. Their immense prayers, advice and support pushed me to do my best at all times.

Finally, to all who contributed formally or informally to this project, thank you so much.

ABSTRACT

Governments all over the world have identified the need to use Information Communications Technology in governance. Electronic governance or E-governance is the use of information and communication technologies in government to provide public services [1]. The use of government portals in E-governance for the dissemination of information and government services is gaining grounds. In Ghana, this practice is not new, in fact there a number of government portals in existence to meet the rising demand of Internet users in Ghana. This research focuses on the user experience considerations needed in designing a government website in Ghana. Key findings were obtained through qualitative research methods which applied questionnaires, user interviews, interviews with subject matter experts and testing of prototypes to arrive at a set of principles suitable for designing a Ghanaian government website. Findings from the synthesis of the various methodologies show a set of principles that reflect what users want on a government website as well as the current government services that should be automated to enhance the user experience of Ghanaian government website users.

Keywords: E-governance, user experience principles, usability

LIST OF ACRONYMS

CAGC - Controller and Accountant General's Department

DVLA – Driver and Vehicle and Licensing Agency

GIPC - Ghana Investment Promotion Centre

MDA - Ministries, Departments and Agencies

NITA - National Information Technology Agency

SME - Subject Matter Experts

UX - User Experience

W3C - World Wide Web Consortium

Table of Contents

DECLARATION	i
ACKNOWLEDGEMENTS	ii
ABSTRACT	iii
LIST OF ACRONYMS	iv
CHAPTER ONE – INTRODUCTION	1
1.1 BACKGROUND	3
1.2 PROBLEM STATEMENT	5
1.3 BENEFICIARIES OF THIS RESEARCH	6
1.4 RESEARCH OBJECTIVES	6
1.5 RESEARCH QUESTIONS	7
1.6 RESEARCH PROPOSITION	7
CHAPTER 2 - LITERATURE REVIEW.....	9
2.1 BACKGROUND	9
2.2 REVIEWS ON E-GOVERNMENT	10
2.3 E-GOVERNMENTS IN THE WORLD - EXAMPLES	15
2.4 E-GOVERNMENT IN GHANA.....	18
2.5 USABILITY ON GOVERNMENT WEBSITES	20
CHAPTER 3 – METHODOLOGY.....	25
3.1 INTRODUCTION.....	25
3.2 RESEARCH QUESTIONS.....	25
3.3 RESEARCH OBJECTIVES	25
3.4 PURPOSE OF RESEARCH.....	26
3.5 SELECTION OF RESEARCH PARTICIPANTS	26
3.5.1 TARGET POPULATION	27
3.6 SOURCES OF DATA.....	28
3.7 METHODS / PROCEDURES USED IN COLLECTING DATA.....	29
3.8 DATA COLLECTION TOOLS.....	32
3.9 LIMITATIONS OF RESEARCH	33
CHAPTER 4 – FINDINGS AND DISCUSSIONS	33
4.1 INTRODUCTION.....	33
4.2 USABILITY EVALUATIONS OF SELECTED GOVERNMENT WEBSITES.....	33
4.3 SYNTHESIS ON SME INTERVIEWS	37

4.4 ANALYSIS FROM SURVEYS.....	42
4.5 ANALYSIS FROM THE USER INTERVIEWS.....	49
4.6 SYHTHESIS FROM PROTOTYPE CREATING AND TESTING	52
CHAPTER 5– CONCLUSIONS AND RECOMENDATIONS.....	60
5.1 CONCLUSION	60
5.2 OTHER RELEVANT FINDINGS	65
5.3 RECOMMENDATIONS.....	67
APPENDIX	69
The User Experience Honeycomb by Peter Morville	69
Questionnaire used in research	69
Transcription of an interview	76
Bibliography	81

CHAPTER ONE – INTRODUCTION

The Internet revolution over the last few years brought an unprecedented technological explosion radically changing many of the traditional ways knowledge is shared and how business processes are executed. With a world population of over 7 billion people; Internet usage has increased from over 360 million people in December, 2000 to a little over 2.4 billion people in June, 2012 [2], meaning technology and the use of the Internet is gradually becoming a huge part of daily life and transactions. Governments are joining in on this revolution by incorporating the use of technology in its services. E-governance or electronic governance is the use of information and communication technologies in government to provide public services, to improve managerial effectiveness and to promote democratic values and mechanisms; as well as a regulatory framework that facilitates information intensive initiatives and fosters the knowledge society [1]. E-governance has become and is an increasing means of governing in modern times. Many governments in the United Kingdom, America, and African countries like South Africa and Uganda just to mention a few have adapted to this method because it is cost-effective, efficient, encourages interaction and also allows the government to get feedback on issues happening in the country.

In Ghana the E-governance phenomenon is not new. The explosion of the digital medium in Ghana has seen some surprising leaps in recent years. While not without its hurdles, the digitization of the government information and services is beginning to pick up speed. Ghana's E-

government initiatives date back to 1995 but the establishment of the National Information Technology Agency (NITA), the ICT policy implementing arm of the Ministry of Communication has enabled the development of E-governance in Ghana. NITA's extensive list of projects includes the development of E-immigration services, online vehicle registration and biometric national identification among others [3].

E-governance is administered using certain avenues. It is administered through social media, television and radio, websites and mobile devices. However this research focuses on the use of portals as a means of administering E-governance in Ghana. This research will analyze what user experience principles or considerations will go into the design of a government website in Ghana. Ghana was chosen for this research because of the increasing number of web users in the country as well as the identified yet untapped benefits E-governance can bring to this country. This is also important because of the current statistics involving Internet usage in Ghana; there has been an increase from 30,000 people in December, 2000 to over 3,500,000 in June, 2012 [2]. The increase in the number of Internet users has created a market for e-services and e-commerce activities which the government must take advantage of. It has therefore become important that the government become abreast with current technology that can aid in E-governance in order to satisfy the needs of the citizens in the country. This research will focus on identifying user experience principles necessary in designing a government website because in an ideal society, the government's priority should be the satisfaction of the citizens no matter what medium is being used by the government. As such this research will place emphasis on the needs/

requirements/desires of the users in terms of the information and services users require on a government website in Ghana.

1.1 BACKGROUND

There are certain vital words that make up the thesis statement which need to be explained in the context of what is being researched on. From the thesis topic, it can be deduced that this research will focus on government portals as a platform for the Ghanaian government to apply E-governance. The first key word to be explained is Experience design. It is the practice of designing products, processes, services, events, and environments with a focus placed on the quality of the user experience and culturally relevant solutions [4]. The bedrock of a user experience design is a design with the user as a primary focus. Designers of this kind focus on what kind of users will patronize a certain product, what the user does with the product and how they use the product; it is all about the user and how the user interacts with a product or a system. In other terms, Experience Design can also be described as a perspective and an approach through which we can uncover hidden opportunities to improve people's lives [4]. User Experience (UX) is to create value for the user and the only way to do that is to focus on the user.

Another keyword in the problem statement is the word government. The Merriam Webster dictionary defines government as a group of people who control and make decisions for a country or state, a particular system used for controlling a country or state, or the process or manner of controlling a country. The government embodies the highest authority in a country or state and their main purpose ideally, is to serve and improve

the lives of the people. A website – from the Merriam Webster dictionary – is a group of World Wide Web pages usually containing hyperlinks to each other and made available online by an individual, company, educational institution, government, or organization. The functions of a website include information hubs and educational centers but can also be used for social networking and entertaining purposes. It is important to note that, the main focus of a government is the people. Government websites; which are means of administering E-governance are platforms used by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government [5]. This is to find an easier way of communicating to the masses and disseminating information and an easier way also for users to find or ask about pertinent issues about the country.

Portals however are one stop online access to many government services. They serve as an important element of public administration reform programs. Most importantly they also provide a practical and visible entry point for citizen-centric transformation of government. In recent times they provide integrated delivery of public and private services on the same platform. Usually, E-government portal implementation can pass through several stages, starting from a user-friendly cataloguing of all information services offered by various agencies to citizens and businesses, then providing one-stop access to the most important interactive and transactional e-services, and ultimately leading to integrated delivery of all government services for citizens, businesses,

state employees and visitors [6]. As stated earlier, this research focuses on portals as a medium for E-governance because it is citizen centered and can incorporate government services fully.

1.2 PROBLEM STATEMENT

The problem statement for this study is to research into user experience considerations that should go into designing government websites in Ghana. Fundamentally, this research addresses the issue of what the users of a government website in Ghana will want to find in terms of information and services on a government website. This is a problem because as stated earlier, there has been an increase in the number of Ghanaians who use and have access to the Internet. This increase is accompanied by an increase in the number of Internet users in Ghana. This means that the government as a provider of vital information and services that affect people's daily lives, has the responsibility of responding to the needs of its citizens, running as effectively and efficiently as possible, and being timely and accurate with its information [7]. The phenomenon of E-government plays an important role here also because it delivers better government services to citizens, improves interactions between government and citizens, government and other government agencies and among businesses. It does this through offering services to citizens online, providing a means of getting feedback and complaints from citizens, providing means for businesses to penetrate the market and also for citizens to get a better understanding of governance (transparency). Another importance of E-governance is citizen empowerment through access to information, contributing to a more efficient government management system.

1.3 BENEFICIARIES OF THIS RESEARCH

This research will be beneficial to users of a Ghanaian government portal, as having a well-designed user-centered government portal ultimately reduces transaction costs involved in government activities. In the sense that having essential government services automated or accessible online reduces the time, energy and cost spent getting it done using other means. On the other hand the government and its several agencies have a convenient means of administering services to the citizens and also it's a more effective and efficient means of identifying and responding to the needs of the citizens. Externally, this research will benefit investors, tourists and researchers who are looking for information on Ghana.

1.4 RESEARCH OBJECTIVES

Objectively, the information gathered from this research will be developed into a framework for current and future government websites. Also information gotten from this research can be used to better guide the government and various government institutions on the needs of citizens regarding the use of a government portal and how it can be met in a more effective and efficient way. On a more subtle note, this research raises awareness on the topic of E-governance in Ghana. The concept of E-governance is gaining grounds but non-Internet users in Ghana have little knowledge on this. As such many governments are cautiously integrating it into their system. In our part of the world, the use of technology and its accompanying services is yet to fully gain grounds and this research will help create awareness on the benefits of E-governance in Ghana.

1.5 RESEARCH QUESTIONS

Questions the research hopes to answer

- What kind of information will such users want to find on a government portal?
- What kind of services will such users want to find on a government portal?
- What structure has being put in place by the government or government website developers to ensure a user centered Ghanaian government portal?
- Which other groups of people will be interested in visiting a Ghanaian government website?
- How can the needs of these different groups be met on a government portal?
- Which user experience principles are most relevant in designing a Ghanaian government portal?

1.6 RESEARCH PROPOSITION

The proposition driving this research is that having a government website designed based on user needs results in the government delivering better services to its citizens, improve interactions between the government and its citizens and other government institutions and business organizations. The reason for this claim is that research has shown that user centered E-governance empowers citizens through the access to information and more efficient government management. E-government strategically is aimed at innovating and promoting transparency in public administrations and democratic processes, improving efficiency and strengthening relations with citizens. Also, it is

aimed at supporting international cooperation initiatives in the field of E-government in order to enhance transparency, accountability and efficiency at all levels of government [8]. This research is driven by the notion that a user-centered government website supports the above mentioned factors. However the aim of this research is not to prove these claims but rather find out what User Experience considerations must go into the development of a government portal in Ghana.

CHAPTER 2 - LITERATURE REVIEW

2.1 BACKGROUND

In recent decades, computer and communication technologies have influenced society in a spectacular way, particularly with the development of the internet. The dependence on Information Technology has grown far beyond our expectations. Many institutions of society have recognized the advantages of Information Technology, thus have entered the digital environment [9].

With the sharp rise in the growth of commercial activities via the internet and the gradual reduction of access barriers to this mode of communication across the globe, the electronic marketplace is becoming the preferred medium of exchange of goods and services. In 2005, the Forrester Research Group predicted that the size of global online transactions will grow to \$12.8 trillion in 2006. Another group of researchers, Yu and Fang also pointed out that the pace of investment in global information infrastructure has increased considerably during the last decade with annual investments of over \$180 billion dollars. Due to these developments and many more, governments worldwide have recognized the potential of the Internet and, are introducing information and transactions online in what is now called E-government [9]. For example, in the United States, governmental agencies such as the Department of Education and the Housing and Urban Development Agency have provided grants that have minimized the Digital Divide between the government and the people through technology. In response to these developments in the commercial electronic marketplace in the United States, the governments of various countries across the globe are also

beginning to implement Internet enabled service delivery programs geared towards the needs of their stakeholders [10]. This service delivery program offered by the government is known worldwide as E-governance.

2.2 REVIEWS ON E-GOVERNMENT

There are a number of definitions for the term E-government and many scholars and researchers have their own version of what it is. Several scholars and researchers have defined E-government in their own ways. However, a group of researchers from the University of Amsterdam; Nik van Dam, Vanessa Evers and Florann A. Arts assessed E-governance in the framework of three perspectives: technological perspective, citizen perspective and government perspective [9]. Each perspective defines E-government from a different angle, focusing on different values. The technological perspective focuses on the technological benefits of digitalizing the government services and applications [9]. This perspective focuses on the evolution of the government to the digital medium, but limits it to the actual process of digitalization, and not objectives, benefits or consequences [9]. From a citizen perspective however, E-government is the use of technology to enhance the relationship between the government and the citizen. The convenience of the user is an essential argument for E-government. Another benefit, from the citizen perspective, is the transparency that stimulates the dialogue and participation between the citizens and government [9].

Now, the government perspective focuses on improving internal processes, facilitating more government services, and simplifying the link between government and citizen. Combining the three perspectives, E-government can be defined as the application of Internet and computer

technology to make government applications and information accessible to the population twenty-four hours a day, in order to maximize the effectiveness and efficiency of government services, allowing the government to come closer to their citizens and adapt these services according to their needs [9]. Government services here include tax filing, purchasing customs forms for clearing and forwarding goods, registration of land, births and deaths, purchasing passport forms and the renewal of driver's licenses. Nik van Dam, Vanessa Evers and Florann A. Arts also came up with objectives of an E-government system as:

- Enabling citizens to effectively participate in the knowledge society/economy
- Integrating, streamlining and customizing the delivery of services
- Improving the quality of policy and decision-making processes
- Reducing the compliance costs of government
- Improving the bottom-line effectiveness and efficiency of government
- Providing greater flexibility in the design and management of government
- Enhancing relationships between citizens and the state, and strengthening democratic processes and institutions [9].

This analysis sums up all the elements that make up E-government. When dealing with the idea of administering governance online as said by Nik van Dam, Vanessa Evers and Florann A. Arts, it is important to break down the roles of all the constituents that make up a successful E-governance which in this case is technology, the people and the

government whose role is to better understand and serve the needs of the people. What is important to note is that, inasmuch as these elements are individualistic, they depend on each other for a successful execution. One element cannot exist without the other; they must all work in perfect harmony as each element feeds off another. The objectives the above mentioned researchers came up with complement the harmony of all three perspectives of the framework mentioned previously.

In terms of the operations of an E-government system, two researchers; Adesegun Oyedele and Kai S. Koong's evaluated E-government and identified six major characteristics that are associated with the operational definition of E-government from previous E-government studies [11]. These primary attributes include

- Provision of information and electronic service delivery
- Enabler of organizational change in the public service
- Deployment for context specific application
- Reliance on knowledge from varying functional areas with particular reference to Information Technology capabilities
- Involvement with integrated input from both internal (public sector employees) and external stakeholders(citizens)
- International /cross-border endeavors issues.

They also identified three domains in which E-government services operate;

- Government-to-government (G2G) [10]
- Government-to-business (G2B) [10]
- Government-to-citizens/non-citizens (G2C) [10]

Specifically, these domains have four levels/stages of activities.

- The first stage of E-government activity is called the “informatisation” stage because its focus is on information provision that may be lacking in bidirectional communication channels and generally deployed to cater for the G2C and G2B service domain [11].
- Unlike the first level, the second level involves bidirectional communication (e.g., email, chat rooms) in the G2C and G2B domain. The integration of G2G activities such as the provision of information addressing the country’s foreign investment policies may also be introduced at this level [11].
- The third level supports transaction services for citizens and businesses. This stage may also involve advance G2C, G2B and G2G applications such as facilitating electronic tax processing and license application filled by citizens and businesses [11].
- The fourth level involves the transformation of government practices via the opinions and feedback of stakeholders, (e.g., e-voting) collaborative activities among government agencies such as the courts and the police and more integrated communication amongst government agencies and their stakeholders [11].

It is important to note that although these segments existed, the core functionality of E-governance was how governments use Information Communication Technology (ICT) and how it could lead to greater efficiency and effectiveness. However, it is interesting that since the mid 2000’s, there has been a shift in focus towards citizen centricity. Governments are recognizing that G2G and G2B are not as significant as G2C. They are identifying E-government as a tool to support and enhance

public sector functions and processes in general and to improve and enhance innovation in the public sector. Currently, there is a shift from government-centric to a citizen-centric area putting more attention to the context in which E-government is developing and on the outcomes for users [12].

The primary focus of an E-government system is changing to the users not the government as stated above. Although there are steps towards building a more citizen centric E-government there are a few obstacles that are challenging this objective. The main challenges faced are:

- Access to electronic infrastructure, hardware and software including user experience considerations such as user friendliness and usability for special user groups like the blind. Services are not being used because either users do not have access or have limited access to electronic infrastructure [13].
- Provision of “stand-alone” or “fully integrated” E-government services [13].
- Awareness of the existence of E-government services and how they are used. This can be linked to the problem of no access to electronic infrastructure. If people have no knowledge of what these systems are, they cannot use it [13].
- Organization of E-government services such as the level of integration and personalization of services, collaboration and corporation between public authorities and the citizens. Basically, making the services easy to use by organizing them in a simple but

fully integrated way so as to increase the likelihood of users using them to solve their problems [13].

- Outcomes of the E-government implementation such as the actual use of the E-government services and whether expectations regarding the quality of services, internal efficiencies and external effectiveness are being met. This is to ensure that users actually get their problems solved by using the service [13].
- Trust by the users in governments and their management of often sensitive personal information, data and digital identities. Governments are not ensuring that information; data and digital identities are stored and used in a trusted and secured way respecting the user's integrity authenticity and privacy [13].

Of all the above listed challenges, there are four that affect the users directly. Access to electronic infrastructure, awareness, provision, organization and trust are inherently user considerations that must be addressed by an E-government system to render it successful. This establishes the phenomenon of E-government, how it works and its success criteria. The next section discusses user experience considerations required to design government portals in countries that have practiced E-governance and methods they used in achieving their aim.

2.3 E-GOVERNMENTS IN THE WORLD - EXAMPLES

As established previously, the main aim of E-governance is to bridge the gap between the government and the citizens via an electronic medium. Several governments like the United Kingdom, France, Italy, Australia, Uganda, South Africa just to mention a few have used this approach. These governments have joined the group of nations who seek

to use Information Technology to enhance government services and activities. One such exemplary government that has been successful with E-governance is the government of Estonia. There have been several studies on Estonia showing how successful the government has been in implementing its E-government. One of such studies is by Meelis Kitsing; a specialist in international and comparative economic policy. He discussed Estonia's success through its recognitions and awards. He based Estonia's success to critical decisions they made especially with the government's introduction of online service delivery which varied significantly across the government agencies. For instance, the Estonians were able to check and pay for taxes online, get building and construction approvals, labor market agencies published available job vacancies and also citizens were able to vote online. The impact of online voting caused a reduction in transaction costs and encouraged transparency and democracy in the country. The Estonian government also harmonized all IT agencies across all governmental departments so that, there was no dependence on just a single individual or organization. Another step they took was to involve the people; the government invested in consultations with the people to find out what they wanted on a government website. For the Estonians according to Kitsing, Internet banking – a recent addition to E-government – meant a simple, reliable and secure method for people to indulge in money transactions and this has increased the use of E-governance among Estonians today [1].

Another country that has been successful in implementing E-government is Britain. Britain's first association with E-government was in 1996. By 2000, the government had made public policies so that all

appropriate services should be electronically available by 2005 [14]. In recent years, with 82% of adults in the UK online, completing transactions online has become second nature. Although online services and transactions were increasing and was used by other organizations the government had not still identified its use up until that time. The UK government realized the need to incorporate digital skills into the organizational DNA and also develop a culture that puts people's needs first by designing services around what users need to get done and not what the government wants them to do. Also, they realized that going digital could save the government between 1.7 and 1.8 billion Euros. They implemented this by moving to a single centralized website - www.gov.uk. They created a search optimal government portal that is designed to address the needs of the citizens. This website which has currently being renovated has been recognized and given several awards. It won the Design of the Year award in 2013 at the Design Museum Awards in London. The website was recognized for its simple yet intuitive nature, its elegance and subtly British nature, its ability to save taxpayers money and making life better for millions of people [15].

On the African continent, South Africa can be considered as having an exemplary E-governance system. The South African government has being committed to providing information to all sectors of the population. This is further stipulated in their constitution as the Promotion to Access to Information Act which actively promotes a society in which South Africans have effective accesses to information to enable them to more fully exercise and protect all of their rights [16].

2.4 E-GOVERNMENT IN GHANA

E-governance is also gaining grounds in Ghana. The government is rapidly employing and integrating Information Technology in its operations. More so, the number of Internet users in the country has increased from 14.1% of the total population in 2011 to 17.1% in 2012 [17]. This 3% increase in Internet users means more people are getting access and using it as part of their regular daily activities. Currently, there are a number of E-government initiatives being run by the government. This is being handled by the National Information Technology Agency (NITA), which is the policy implementing arm of the Ministry of Communications. NITA is responsible for implementing Ghana's IT policies. The objectives of the NITA include the regulation and provision of quality Information Communication Technology in Ghana. NITA's establishment is essential for E-government to fully take off in Ghana which is also an essential part of the E-Ghana project [18]. One of the objectives of the E-Ghana project is to contribute to improved efficiency and transparency of selected government functions through E-government applications. There are a number of ministries and departments connected to this project. Ministries involved are the Ministry of Finance, Ministry of Tourism, Ministry of Health and the Ministry of Education while some government agencies and departments like National Information Technology Agency (NITA), Controller and Accountant General's Department (CAGD), and the Driver and Vehicle and Licensing Agency (DVLA) just to mention a few are also involved. As part of the E-Ghana Project, NITA is expected to implement a one-stop-shop government portal to allow Ghanaians have access to all government services [19].

This platform is already in operation and can be accessed by going unto the E-services website¹. Other ongoing E-Ghana projects include the E-health strategy under the Ministry of Health, E-pay slip by the Controller and Accountant Generals Department and automation of tax and revenue services by the Ghana Revenue Authority.

Despite all this effort by the government it has been noted that there is more room for improvement. IMANI Center for Policy and Education which is a Ghana based think tank and research institute rated 47 government Ministries, Departments and Agencies (MDA) based on their web presence alone. They chose to evaluate their web presence because web presence in this direction determines how easy it is to get information about any MDA. Also current technological trends and the easy availability of Internet suggest that having a web presence on the Internet is the first level of engagement any agency with a service will have with their clients or prospective clients [20]. The criteria used to score these government agencies were the existence of a website, up to date information on the website, easy navigation, no dead links and response times to web based enquiries. It was noted that out of the 47 government ministries and departments selected 35% did not have a website even though some of these MDA's offered critical services. An example is the Ghana National Fire Service and the Ministry of Justice and Attorney General. Ultimately, most of the websites (72%) fell within and below an average ranking. In addition, it was noted that the Ghana Tourist board website had the highest average page per visits of 11 page

¹ www.eservices.gov.gh

visits daily. IMANI however, recommended that the government needs to work on its web presences in order to meet the demands of the citizens and from the outside world [20].

This is currently Ghana's stance in terms of E-government. Although it is a good start that several MDA's have a web presence more work needs to be done in terms of meeting the needs of the users via the services offered. There is the need of assessing and researching into how government services can be improved by meeting the needs of its users. This is where user experience principles should be considered. Mainly because it gives the government an understanding of how the user thinks and interact with a government website or portal which ultimately transfers into better delivery of services by the government.

2.5 USABILITY ON GOVERNMENT WEBSITES

As stated above, the government of Estonia was able to merge all three perspectives of an E-government successfully based on functionality and vital services they were able to offer their citizens. The Government of UK was also successful because it designed its system around the needs of the users. Research has also shown that one success factor for government websites is its usability (user friendliness). Government websites offer great benefits to citizens and government however; such benefits can't be realized if the websites are unusable. According to Assimwe and Lim who are researchers, usability is defined as the extent to which a product for example software or website can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. They stated that unusable

websites reduce the effectiveness between the users and the organization and that is exactly what E-governance seeks not to achieve [21]. In the context of design, usability studies are known as user experience design or considerations. User experience focuses on having a deep understanding of users, what they need, what they value, their abilities and also their limitations [22]. In User Experience Design (UXD) designers must ensure that users find value in what is being provided. A diagram that explains this is the User Experience Honeycomb designed by Peter Morville who is co-author (with Louis Rosenfeld) of the best-selling book Information Architecture for the World Wide Web and founder of Semantic Studios, a leading information architecture and user experience consulting firm [23].

See the Appendix for the User Experience Honeycomb diagram.

The user experience honeycomb is made up of 7 hexagons with each representing a value a user must gain from a website. Morville explained that the information on a website must be

- Useful : Content must be original and fulfill a need
- Usable: The website must be easy to use
- Desirable: The identity or brand used must evoke emotion and appreciation
- Findable: Contents needs to be navigable and locatable
- Accessible: Contents needs to be accessible to everyone even those with disabilities
- Credible: Users must trust and believe what you tell them
- Valuable: Being able to accomplish all these gives value to the user [7].

Going back to what the Government of UK did in their website design. The website was redesigned to fold the government's thousands of existing websites into just one and make it more user-centered. They were able to accomplish by identifying what information and services people are looking for as well as government policies. Their ability to make Gov.uk the best place to find government services and information was by following 10 principles in their design.

The principles are:

- Start with needs: The design process must start with identifying and thinking about real user needs not government need [24].
- Do less: Government should only do what only government can do. If someone else is doing it — link to it [24].
- Design with data: It is necessary to start from scratch — users are already using our services. This means we can learn from real world behavior [24].
- Do the hard work to make it simple: Making something look simple is easy; making something simple to use is much harder — especially when the underlying systems are complex [24].
- Iterate. Then iterate again: The best way to build effective services is to start small and iterate wildly. Release minimum viable products early, test them with real users, and move from Alpha to Beta to the launch adding features and refinements based on feedback from real users [24].

- Build for inclusion: Accessible design is good design. We should build a product that's as inclusive, legible and readable as possible. If we have to sacrifice elegance — so be it [24].
- Understand context: We're not designing for a screen, we're designing for people. We need to think hard about the context in which they're using our services [24].
- Build digital services, not websites: Our service doesn't begin and end at our website. It might start with a search engine and end at the post office [24].
- Be consistent, not uniform: Wherever possible we should use the same language and the same design patterns — this helps people get familiar with our services [24].
- Make things open: it makes things better: We should share what we're doing whenever we can [25].

The basic framework for the gov.uk website was to start with user needs; not government needs. The team put a lot of effort into identifying and thinking about real user needs and designed the website accordingly. They also realized that government portals serve as information hubs and that if all the websites were independent of each other it became hard to find things. This is a common problem in Ghana as well. There are several government websites all independent of each other making it difficult to find or track information. The gov.uk development team found a clever way of integrating all government services into one portal.

Another thing they did was to make it look very simple which is even harder than designing a complex website. Making it simple means they had to strip off all the fancy designs and focus on delivering content

and so there was a huge trade-off between the aesthetics and giving the user the content they need. Lastly, the team would not have been able to come up with this set of design principles if they did not test with real users and incorporate the necessary changes into the design, and this they did several times. [24].

Looking at the principles stated above, gives a better understanding into what should go into the design of a government portal. The user is important and needs to be considered at all times. However it is clear that capturing the perspective of the user is the most important aspect of any government portal hence there should be a strong focus in that direction.

CHAPTER 3 – METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research approach, the kind of data needed for the study and the data collection tools that were used to find answers to the research questions outlined in Chapter 1.

3.2 RESEARCH QUESTIONS

Questions this research will answer are:

- What kind of information will users want to find on a government portal?
- What kind of services will users want to find on a government portal?
- What structure has being put in place by the government or government website developers to ensure a user centered Ghanaian government portal?
- Which other groups of people will be interested in visiting a Ghanaian government website?
- How can the needs of these different groups be met on a Ghanaian government portal?
- Which user experience principles are most relevant in designing a Ghanaian government portal?

3.3 RESEARCH OBJECTIVES

As stated in Chapter one, the information gathered from this research will be developed into a framework for current and future government portals to adapt to in the process of development.

3.4 PURPOSE OF RESEARCH

The primary aim of this research is to make two major investigations; firstly, the user experience design principles needed in designing a Ghanaian government website, and secondly, the government services that can be automated and rendered using a government portal. To achieve this, the research made use of qualitative research techniques. Qualitative research is interested in understanding the meaning people have constructed, that is, how people make sense of their world and the experiences they have in the world. It allows for the inclusion of many different types of data collection and analysis techniques, as well as the diversity of theoretical and epistemological frameworks that are associated with qualitative research [26]. In light of this, the research included stakeholder interviews, subject matter expert interviews, user interviews, questionnaires, literature reviews and prototype testing. These techniques will be further explained in the sections that follow.

3.5 SELECTION OF RESEARCH PARTICIPANTS

Participants for this survey were selected using a purposive sampling method. Purposive sampling requires the selection of cases that are information-rich with respect to the purposes of the study [27]. This sampling method is a technique used in qualitative research. The aim of purposeful sampling is to provide the research with a specific group of participants whose contributions are beneficial to the final outcome of the research. The type of research applied here is qualitative research because the research participants are human subjects and human behavior cannot be determined by using data from quantitative research. User experience considerations describe how people feel about a system

[28] and as such using qualitative research methods is ideal. Also, the success criteria for this research will be measured by how well it meets the needs of the user. Qualitative research seeks to show the domain, context and constraints of a product/service in a different and more useful way than quantitative research. Also, it helps in identifying patterns of behavior among users [29]. Qualitative research also answers the questions:

- How does the product fit into the broader context of people's lives? [29]
- What goals motivate people to use the product and what basic tasks help people accomplish these goals? [29]
- What experiences do people find compelling? How do these relate to the product being designed? [29]
- What problems do people encounter with their current ways of doing things? [29].

These were the research methods used in selecting participants for this study. The next section discusses the target population for this research and how they were selected.

3.5.1 TARGET POPULATION

The target participant group chosen for this study was Internet users in Ghana. This was further narrowed down to Internet users who access government websites. This target group was selected based on the purposive sampling method. Furthermore, Internet users are more likely to be interested in accessing E-government portals and its services. In addition to Internet users the research considered certain groups of

people who will access these sites based on their needs. This analysis was arrived at from observing some government websites, the kind of information they put up and the people they target. The groups of people narrowed down to be participants for the research, were working class citizens, this included workers, civil servants and top government officials. Likewise, people in the educational sector such as students and general citizens who are interested in acquiring information or interacting with the government in one-way or the other were considered for the research. Some other factors that were considered were the nationality of the user; foreigners/non-Ghanaians also had a stake in what goes on, on a government portal. It was noted that foreigners needed information on tourist sites while investors needed investment information. Another population target was the Subject Matter Experts. This target group has technical persons with expert knowledge in designing government websites and as such their contribution is relevant to this research. Their experience was thought relevant, as they could give a perspective on what stakeholders of government websites considered before putting up a website.

Contributions from all these groups of participants reflected in the design of the government portal. Having demographic information about who uses and who does not use a government website as well as their needs helps in determining the type of information and services that needs to be present on a government portal.

3.6 SOURCES OF DATA

As stated earlier, data was gathered from groups of individuals selected through qualitative purposeful sampling methods. Other sources

of data aside user and subject matter expert contributions were from scholarly articles and periodicals obtained through research.

3.7 METHODS / PROCEDURES USED IN COLLECTING DATA

There were two major groups of participants in the research; the users and the Stakeholders/Subject Matter Experts (SME). The users are people who regularly access government websites. A stakeholder is anyone with authority and/or responsibility for the product being designed. More specifically, stakeholders are key members of the organization commissioning the design work and typically include executives of the organization. Subject Matter Experts are experts on the domain within which the product will operate. Often they are hired by the stakeholders to build and design government websites. Similar to stakeholders, SME's can provide valuable perspectives on a product and its users [29]. For the purpose of this research stakeholders and SME's were combined. In actual fact, the stakeholders are the government officials responsible for the various government Ministries, Departments and Agencies (MDA) and the SME's are the people contracted to build the websites. It was observed that the SME's played the roles of the stakeholders when it came to building government websites. The actual stakeholders do not have enough knowledge in setting up a website and as such leave the bulk of the work in the hands of the SME's. This means the SME's have to act as both stakeholders and SME's.

Information from participants who are users was gotten through two methods; questionnaires and user interviews. An estimated number of fifty (50) users were targeted as the sample size. This number was purposefully and conveniently chosen due to the nature of this research

and considering time factors. The questionnaire/survey gave the research an idea of the type of people who access government websites and the kind of information and services they are looking for. The information from the questionnaire also gave vital analysis on participants who had knowledge of government websites and had previously accessed it, versus those who did not have an idea. The user interviews were conducted to get a deeper understanding of the needs, and activities performed by the users and also to create personas. Personas are archetypes built after a preceding exhaustive observation of the potential users. Each persona is based on a fictional character whose profile gathers up the features of an existing social group. In this way the personas assume the attributes of the groups they represent: from their social and demographic characteristics, to their own needs desires, habits and cultural backgrounds [30].

Another group of participants in this research were the stakeholders/ SME's. As explained earlier the SME's sometimes played the role of stakeholders. To get the opinion of the SME's 5 interviews were proposed with SME's in this field. This group was important for the research because of their obvious knowledge and experience in building government websites which was beneficial to this research but also represented the developers' point of view. All this was to find out how these different groups of people interact with an E-governance system and how elements of their interaction can be included on a government website to enhance user interaction.

The sequence of activities used in collecting data is listed below:

- Literature review: This was the first point of call for obtaining data for this research. As seen in chapter 2, scholarly literature concerning this study was reviewed. Information was obtained on the idea and practice of E-governance through government portals in the world and in Ghana.
- Usability evaluations: The next method employed was to perform usability evaluations on selected government websites. These websites were assessed with user experience principles used by governments who have been very successful at it. User experience principles such as active tabs, clickable links, and information hierarchy just to mention a few were applied as the criteria.
- Surveys and questionnaires: These tools were used for collecting data from targeted users of the websites
- User interviews: To supplement the questionnaires the next method applied was user interviews. Through user interviews, unique and descriptive models of the users were created as a powerful design tool for interaction design known as personas [30]. Personas provide the research with a precise way of thinking and communicating about how users behave, how they think and what they wish to accomplish.
- SME interviews: These were conducted as a means of gaining information from experts in this domain.
- Prototype testing: Randomly selected users were made to interact with prototypes developed from data gathered from the previous methods. Prototypes were tested to know if users' needs were met or not. This also provided an idea on how users interact with the

system, problems they encountered and the positive elements such information hierarchy and design, which should be maintained on such sites.

3.8 DATA COLLECTION TOOLS

For this study, this research made use of data collection tools such as questionnaires, user interviews, SME interviews, usability evaluations of government websites and usability testing of prototypes. The questionnaires were mainly geared towards the users of government portals. This was to gather information on services and functionalities they will like to see on a government website. Tools used for the questionnaires were forms created using the Google Docs application. Google Docs was used as a tool to create an online version of the research questionnaire in order to reach out to participants who could not be contacted physically. The questionnaires were supplemented with user interviews which is a one on one interview with participants in order to create personas for the website. The interviews were audio and video recorded with the researchers' mobile phone only when the participant agreed to be recorded. The SME interviews took on the same procedure and interviews were audio recorded only at the consent of the interviewee. For the observational study method, video cameras were used to record a user's interaction with a government website. For the usability evaluations, selected government websites were analyzed based on a set criteria and results from the analysis were recorded in an excel document. While the usability testing of the prototypes were recorded using a video camera. As stated earlier, the participants' consent were sought before any activity was recorded.

3.9 LIMITATIONS OF RESEARCH

There were some challenges encountered in the course of this research. First of all the proposed number of SME interviews which was originally estimated to be 5 was not met. This was the case because it was realized that it is extremely difficult to get into contact with the people who build government websites. This is due to the fact that contracts are awarded to these individuals or groups of people in a very bureaucratic process making it difficult to trace the website designers. Also there was a time constraint associated with this project that made it impossible to delve deeper into the research. Unfortunately so much had to be done in a short amount of time making it difficult to accomplish all that was desired to be accomplished.

CHAPTER 4 – FINDINGS AND DISCUSSIONS

4.1 INTRODUCTION

This chapter analyses the data gathered from research. It is a synthesis from the various participants of the research and how the information attained makes sense in relation to this study. Findings from the various methodologies are discussed and interpreted. Also discrepancies are brought to light and discussed.

4.2 USABILITY EVALUATIONS OF SELECTED GOVERNMENT WEBSITES

As part of this study, evaluations were conducted on selected government websites to check for their level of usability. The 10 selected government websites were chosen by random selection. The criteria used to measure their usability were taken from Peter Conradie, author of

Introduction to good usability. In it he discussed principles like the importance of conforming to standard rules because it is more likely users are familiar with such standards than trying to reinvent the wheel. Also reinventing the wheels means the website designer will have to go through the whole design process which will take a longer time. Peter Conradie also mentioned the need to borrow from the bigger websites because chances are since money was spent in making them it will be well designed. The other point was the need to be brief and succinct since users' these days do not want to spend a lot of time on one website. Aside these generic rules, Peter Conradie talked about specific interface design guides to apply in designing websites which have being listed below [31]. These guidelines were applied in evaluating the selected government websites. The guidelines are listed below with their sub criterion [31].

I. BREADCRUMBS: This attribute enables users to trace/find their way to their place of origin no matter how far they are away from it. The criterion used under this attribute are:

- The use of breadcrumbs
- The use of corresponding labels
- Ability to aid navigation
- Not linking to current page

II. TABS: This concept is a metaphor borrowed from the workplace. It helps in dividing content into categories. Under tabs there are some principles this study made use of.

- Arrangement (One row of tabs only)
- Short labels of tabs
- Active tab indication

- Availability of a home page tab

III. LINKING: Links are pieces of text that are underlined and usually colored blue that sends the user to a reference page where they get more information about what they are looking for. The principles made use of are:

- Conformity to standards
- Easily Identifiable
- Enough space between two links
- Indicate what is being linked to

Other criterion was:

IV. DROP DOWN MENUS

- Hiding underlying content
- Consistent naming
- Avoid nested menu

V. SCROLLING

- Never Horizontal Scrolling
- Hide scrollbar when necessary

VI. CONTENT

- Titles – Hierarchy
- Content groupings and categorizations
- Body Text
- Color
- Video
- Splash Screen

See attached excel file for the detailed evaluations.

In the usability evaluations it was identified that some of the government websites are text heavy. For example the Ghana Revenue Authority website and the Bank of Ghana website had a lot of written information displayed on their homepages. The fonts used varied from being too small to read or too large for a website. Information displayed was not segregated into smaller segments and so reading was difficult. Others like the Ghanaian government portal and that of the presidency of Ghana (although this was not part of the websites evaluated) had more pictures than text. The pictures were placed side by side and sometimes they displayed similar content and that took the focus away from the actual content. Also it was noticed that government organizations viewed their online presences as a web branch (explained later in the chapter) and so they replicated their values and colors especially on the websites. This is regardless of the fact that the colors are complementary, pleasing to the eye or not. The Ghana Immigration Service website for example used the color green in different shades on the website because that is their official color. This decision made it very difficult to read as there was no contrast between the text and the background. The Ghana eservices portal also made use of very strong contrasting colors on its homepage which made it difficult to read the words or find information. As a user of these websites, it was also noted that getting the information needed required going through several pages before arriving at the required information. The official portal of the government of Ghana for example had very little information on the homepage. This increases the transaction costs for users because they have to go through several webpages on the website before arriving at desired information. Other

minor issues that were identified were typographical errors, differences in typography on the homepage, bad color combinations, some webpages were unavailable or under construction.

On a more positive note, some websites like that of the Ghana Revenue Authority had functions that allowed users to either decrease or increase font sizes on their website. Generally, the selected government websites conformed to most of the criteria used to evaluate them with the exception of a few outliers.

4.3 SYNTHESIS ON SME INTERVIEWS

As stated in the previous chapter, interviews were conducted with Subject Matter Experts in the field of user interaction design on government websites. Out of the sample size of five; four experts were interviewed for this research. Standard sets of questions were asked across board to get an understanding of how the government through these SME's contributes to the user-centered design of websites. Websites the SME's had collectively worked on were the National Petroleum website, the National Information Technology Agency (NITA), the Controller and Accountant General's website and finally the Ghana Investment Promotion Centre (GIPC). They all were either part of a team that designed the website or were contracted to do it individually. All had individual opinions on this research but there are central themes this research will focus on.

First of all, during the research it was noticed that there were no set of standards for guiding the developers of government websites in

Ghana. This was confirmed during my interview session with the various SME's. Three out of four designed and built the government website without a local set of standards. One of the three was unaware of some form of standards, another stated his client did not communicate any set of standards to his team and the last one stated that NITA which is identified as some form of regulatory body only provides Internet connectivity to the various government organizations and thus does not have power to determine what should or should not be put on a government website. Now NITA, National Information Technology Agency is the technology implementation arm of the Ministry of Communications. They are responsible for implementing technological initiatives and developments in the country [32]. They review government websites and serve as an advisory body for them as well. In a personal interview with Nana Prempeh who worked on the Controller and Accountant General's website, he stated that currently, they do not have the power to check the format and substance of government web developers. Aside this although most people are aware that NITA is some form of advisory body concerning the development of government websites; they are not required by law especially to follow any set of standards they give. Meaning most government website developers work independent of standards and at their own discretion or that of the organization that hired them (stakeholders). The other SME who agreed to use some form of standards was the personnel who worked on the NITA website. He also stated that NITA is working on web standards for the design of government websites which was actually in draft at the moment. He however could not give a specific time frame for its completion. What he

did in his work on the NITA website was to incorporate local web standards with that of international web standards. The international standard body called the World Wide Web Consortium (W3C) was used. W3C is an international community where member organizations, a full time staff and the public work together to develop web standards. W3C's primary activity is to develop protocols and guidelines that ensure long-term growth for the Web [33]. One of their goals is to provide web services for everyone regardless of infrastructure, physical or mental abilities [34]. The lack of a set of standards/principles for designing government websites in Ghana means most of the information that are put on the website; design or content wise is at the discretion of the website developer or the government organization that hired them. This lack of standards has led to a myriad of differences in government websites with no consistency amongst them.

In the SME interviews, it was identified that there were some issues as to whether the users of the website were taken into consideration before the website was designed. A user of a government website in this case is anyone who accesses the websites to find information or perform a task. Most of these government website designers knew who they were designing for and this was done via research. They considered their clients' needs and the people they were designing for as well. One SME was of the view that the user's needs are not taken into consideration at all. For him, a government website caters first to the government workers then the rest of the information is to any other person. During the synthesis of all the interviews, it was identified that website developers hired by the government usually have to cater to the needs of the agency

that hired them before other groups of people are considered. Usually the government agencies have certain requirements that need to be fulfilled by the website designer and so that comes first. In most cases the designer if he/she is a user experience designer will conduct research to find out who will be accessing the website, what will they be looking for and the demographics of the users which include age, sex and geographic location. This led to the definition of who the actual user of a government website is. One expert stated that the users in his case were the people responsible for updating the content or information on the websites and the public were the people who come onto the website to access information. However other SME's were of alternate views. The SME who redesigned the Ghana Investment Promotion Centre (GIPC) website stated that since their client gave them little direction but a lot of information to deal with in a short period he relied mainly on his experience and research. For him as an HCI expert he decided to do a lot of research into people who are interested in investing in Ghana. He found out about the users' age group, technological competence and activities they perform regularly. He also looked at what other countries were doing especially the countries that attracted a lot of investors. The difference in approach here was based on the organization's needs and the expertise of the SME.

Another thing that was identified was that government websites are considered as web branches; a term one expert used to mean an extension of services already offered. In a personal interview with Charles Hansen-Quao of DreamOval Limited who worked on the Ghana Investment Promotion Centre website, stated that most businesses have

branches and the essence of the branch is to extend services already offered at the head office. Thus any service you enjoy at the head office should be enjoyed at the branches as well. A website technically is a branch of your business because it is an extension that talks about your business but can do more than just talk about your business. It can do your business for you and more efficiently too. Just like when you visit an actual branch you are able to interact and ask question in the same way a web branch should replicate the same activities. Web sites have moved from just being an informational page to places where you can perform transactions. Based on what he said, websites can eliminate entirely the physical interaction between a consumer and the organization or enhance existing services thereby reducing interaction in the actual world. As such if a customer goes to a company's web branch it should be able to interact with the customer just as it will do in its physical branch/space. It has been noted that government websites serve as a liaison between the government and the people. Government websites are not meant to eliminate the interaction that goes on in the physical spaces or buildings. It is meant to serve as an extension of government services to a wider range of people. There are government websites that do not completely solve a user's issues but continues the interaction in the offices as well. That is the work of portals; they don't eliminate all possible human interaction but reduce the burden on the physical spaces. It is crucial therefore that a government portal serve as a web branch in an efficient way.

Finally their thoughts on having one central web portal were interesting. All the experts agreed there are pros and cons to this issue.

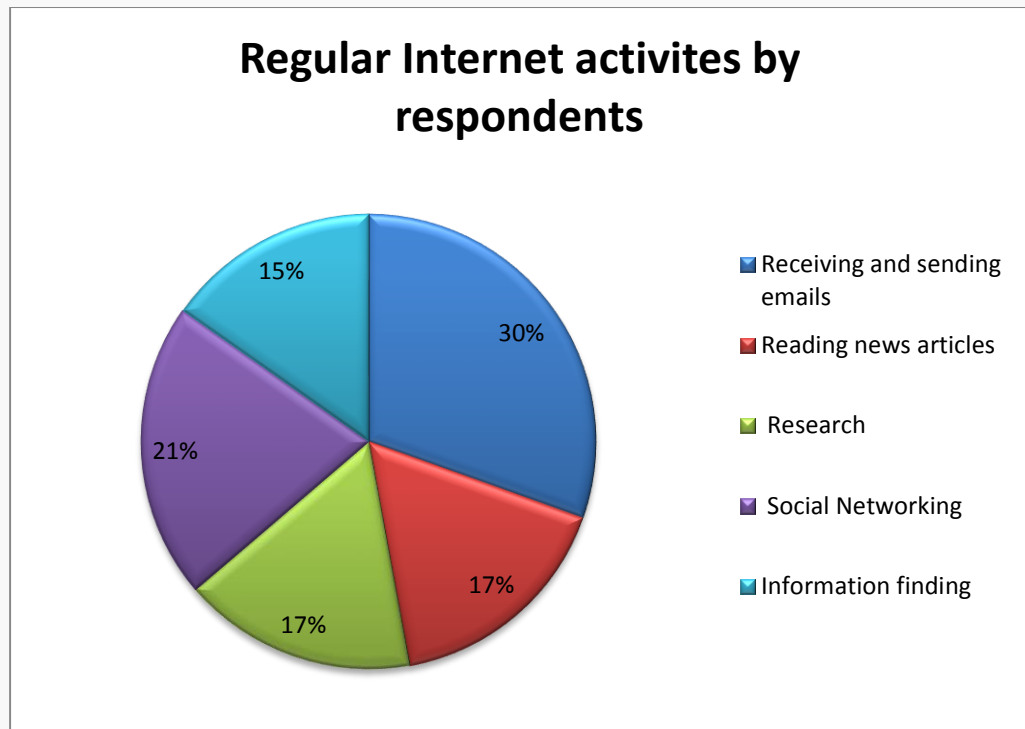
The positives discussed were that it will be easy to navigate and find information. On the negative side; they were issues about the bulk of information government has and to integrate all that into one portal will not be advisable. The argument was if the website was to be hacked into by someone then we lose a lot of valuable data which will take a while to retrieve. It came up that there actually is no law that states that all the ministries should have a web presence and so these experts thought it will be best if the ministries were segregated and everyone handles their business individually. However, one expert was of the view that all the ministries should be under one umbrella then the agencies under another. The ministries under one because they don't have that much implementation work to do; basically formulating policies and carrying them out while the agencies do more functionality and implementation. Also because the ministries change so much with every change of government comes a change of names and ministers and the agencies remain the same. As such there needs to be constant supervision and changes in information.

4.4 ANALYSIS FROM SURVEYS

For my survey, I selected 50 respondents for my analysis. These participants were purposefully chosen because of the nature of this research. Although the participants were selected based on certain characteristics, the questionnaire sought to confirm or justify their inclusion. This was done by finding out certain demographics about the population like the nationality, age group, profession and Internet users. Out of the 50 respondents, it was identified that 94% were Ghanaians and the other 6% were non-Ghanaians including mainly Americans and

Nigerians. Also 80% of the respondents were between the ages of 21- 30 years. The other respondents were between 31-40 years (14%), 41-50 years (4%) and above 60 years (2%). It was also observed that most of the respondents were students with other varying professions ranging from Information Technologist, bankers, librarians and engineers. Out of the respondents, a 100% owned/used a mobile device. 92% stated the mobile device they used was a smartphone whiles the other 8% stated it was a tablet.

User experience considerations require that the designer walks in the shoes or identifies the real needs of the user. The questionnaire sought to deduce this through carefully crafted questions. In the survey, a 100% of the respondents stated they were regular Internet users meaning they use the Internet every day. They also indicated activities such as receiving and sending emails as the most regular activities followed by interactions on social networking sites. 30% of the total respondents said they regularly go online to send and receive emails, 21% of the same number of respondents chose social networking whiles 15% said they use the Internet to find information. 17% said the use the Internet for reading news articles and another 17% said they use it for research. This behavioral pattern suggests that there is a high probability that users may replicate these activities on any website including a government website.



Furthermore, it was interesting to note that 96% of the respondents had visited a government website before. The other 4% stated that it was because as a user you will eventually have to walk into a government office to get the information needed and so there was no need to go online. To get an understanding of what the 96% thought of government websites; the questionnaire allowed users to select and state which websites they had visited and then rate them based on usability (user friendliness) as poor, average, good, very good and excellent. Respondents were allowed to select as many websites as known.

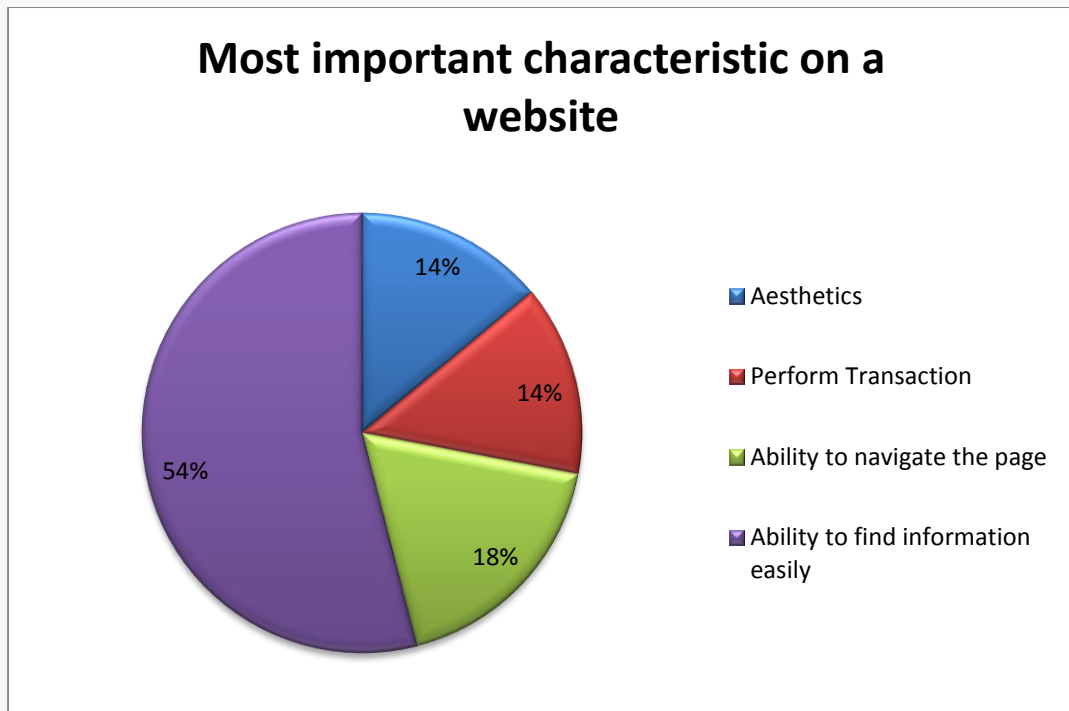
Below is a table showing which government websites were familiar with respondents

Government Website	No. of respondents	In percentage
www.ghana.gov.gh (Government of Ghana Official Portal)	22	20.56
www.eservices.gov.gh (Ghana E-Services Portal)	3	2.80
www.bog.gov.gh (Bank of Ghana)	24	22.43
http://www.gra.gov.gh/ (Ghana Revenue Authority)	5	4.67
http://www.ghanaimmigration.org/ (Immigration Service)	7	6.54
http://www.fdaghana.gov.gh/ (Food and Drugs Authority)	4	3.74
http://www.touringghana.com/mot.asp (Tourism, Culture and Creative Arts)	7	6.54
http://www.nca.org.gh/ (National Communications Authority)	5	4.67
http://www.moe.gov.gh/ (Education)	5	4.67
http://www.energymin.gov.gh/ (Energy and Petroleum)	1	0.93
http://mlgrdghanagov.com/ (Local Government and Rural Development)	1	0.93
http://www.moh-ghana.org/ (Ministry of Health)	5	4.67
http://www.ecgonline.info/ (ECG)	6	5.61
police.gov.gh (Police Service)	2	1.87
http://www.gsa.gov.gh/home/ (Ghana Standards Authority)	3	2.80
http://gipcghana.com/ (Ghana Investment Promotion Centre)	7	6.54
	Total	100

Among the 16 government websites stated, 22% of the 96% had visited the Bank of Ghana website and that was the highest number for any government website in the survey. This was followed by the government of Ghana Official Portal with 21% having accessed the site before. Most people rated the government website they had visited as average. The rating used was inspired by the concept of the Likert scale. For this research a user selecting 1 meant poor, 2 meant average, 3 meant good, 4 meant very good and 5 meant excellent. Now the rating was done to find out what positive characteristics on the websites with the highest number of visits should be borrowed when designing a government portal. It was necessary to also understand what the users were looking for and what made the most visited websites known among

this group of respondents. The research also identified the least visited Ghanaian government websites. These are the Energy and Petroleum website, the Local Government and Rural development website, and the Police Service Website. For the least visited websites what was the reason for that and what can be done about their user interactions. To understand the reasons the respondents were attracted to the most visited websites; participants were made to choose from a set of attributes that they will prefer to see on a government website. They were made to choose from aesthetics (beauty), ability to perform transactions successfully, ability to navigate the page, ability to find information easily. Out of these characteristics, 54% of the respondents chose ability to find information easily as the most important characteristic for them. 18% out of the remaining chose ability to navigate the page. Identifying these two characteristics will help in determining which user experience principles should be considered when designing a government website in Ghana.

Below is a pie chart showing the results of the most important characteristics on a website for respondents.



As stated earlier, to get an understanding of user needs, the designer must determine the behavioral pattern of the user. Data from the questionnaire showed that generally people visit government websites to get information of all kinds. This includes: Information on statistics, interest rates, Treasury bill and bond rates, on the Ministries, government appointees and district assemblies, for academic research or even to get in contact with a preferred government agency. When asked about what they will like to see if they were regular visitors on government websites, the respondent suggested user friendly layouts, orderly presentation of information, ability to find information, information categorized accordingly, more navigation options (proper links and buttons and working search boxes), news feed and a modern layout amongst others. Although there were suggestions that are beyond the scope of this study

like relevant information, information should be updated regularly amongst others they were noted regardless.

In chapter 2 it was stated that E-governance consists of eservices such as automation of services and the like. It has become very necessary that government portals incorporate such systems to meet rising demands. The official government portal of the United Kingdom gives users the opportunity to register and subscribe to services online (gov.uk). As stated in chapter 2, Ghana has joined the host of nations who have signed unto incorporating e-services in government activities. E-service developments like the e-payslip by the Controller and Accountant General (CAG) department and e-health strategy by the National Information and Technology Agency (NITA) as well as the eservices portal. In light of this, the research also sought to get user's needs in terms of eservices in Ghana. Among a list of options, respondents were made to select the top 5 activities they will like to perform on a government website. 80% of the respondents wanted to be able to register and renew driver's license online. 56% also stated they want to be able to send in requests or complaints and receive answers. 48% of the respondents wanted to be able to pay for their taxes online. Aside the given options some respondents wanted to be able to pay utility bills online and simply be able to see great things happening in Ghana. It was noted these activities were very important to users and as such should be given priority.

These were the data generated from the surveys designed to get the user's thought on government websites.

4.5 ANALYSIS FROM THE USER INTERVIEWS

"A website's success still hinges on just one thing: how users perceive it" [28]

Jacob Gube identified that User Experience design won't work in every situation for every user because, human beings, are all different. What works for one person might have the opposite effect on another. The best way to solve this is to design for specific experiences and promote certain behaviors, but an experience itself cannot be manufactured, imposed or predicted. Design must be tailored to the goals, values, production process and products of its website [35]. In order to capture this quality in a government portal, this research made use of Persona's by conducting user interviews. Personas or user models are detailed, composite user archetypes that represent distinct groupings of behaviors, attitudes, aptitudes, goals, and motivations observed and identified during the research phase [30].

During the research, it was realized that information from the questionnaires was not sufficient for arriving at a viable conclusion. Thus 10 selected participants sampled from the total target population were observed and interviewed to identify the specific roles they perform on government websites of their choice. There are key steps to follow using this approach; first to choose the right individuals to design for; those users whose needs best represent the needs of a larger set of key constituents and then to prioritize these individuals so that the needs of the most important users are met without compromising our ability to meet the needs of secondary users. The users' behavioral patterns, preferences and choices were noted through a video and/or audio

recorder. Below are some personas created from user interviews and observations:

Persona 1

Name: Imisioluwa Okeke

Age: 21 years

Nationality: Nigerian

Profession: Student

Background Story: Imisioluwa is a Nigerian who has come to Ghana for the first time to study Medicine. As a foreigner, she has to go through the process of getting used to the environment and the usual functionality of things. In Ghana, the state recognizes her as a foreign student and thus she is required to get a student permit in order to be recognized by law as a citizen. In her quest to follow the law, her first point of call is to go online to try to register on the Ghana Immigration website.

On the immigration website she looked for information on how to get a resident permit, how much it costs to pay for one and available days to submit documents. Also information on when to go for her student permit when it is ready. Generally detailed information concerning immigration on the website was her concern. To her dismay she did not find any of such information.

Key goals: For her to be recognized by law in Ghana, she will need information on specific dates to come for resident permits as well as alerts on when permits are expiring and need to be renewed. Be able to download and submit forms online in order to reduce activities at the Immigration offices. After visiting the immigration office it became clear after standing in queue for so long the need to have an online platform as this makes the process faster and more efficient

Website accessed: Ghana Immigration website
(www.ghanaimmigrationservice.com)

Persona 2

Name: Fiifi Anim

Age: 22 years

Nationality: Ghanaian

Profession: Student

Background Story: Fiifi Anim is a student in one of the tertiary institutions in Ghana studying Business Administration. For his academic work as a business student he does a lot of research on the economy of Ghana and as such he has to find information on tax rates, GDP's, exchange rates and the like. Due to the nature of his course he accesses the Bank of Ghana website a lot; at least once a week. He attests to the fact that it is easy to find information because he has done it several times but he said it was difficult in the beginning.

Key goals: He wishes to see a more orderly presentation of information and for the interface to be lively; at the moment it is too boring. He also would like to see important information updated regularly.

Website Accessed: The Bank of Ghana Website (www.bog.gov.gh)

Name: Kathryn Williams

Age: 37 years

Nationality: British

Profession: Consultant

Background: Kathryn is in Ghana as a consultant for an oil company and during her free time she likes to tour Ghana a bit. She has heard about some good places to visit from her colleagues at work but she needs more information about the places plus some ratings on those places will be a bonus. She visits the Ghana Tourism website but finds little information. Unlike other tourism websites she had visited in other countries this one gave her very little information and there was little to see. It did not seem like the government was doing its best to sell itself to tourists.

Key goals: She hopes to see recommendations on places to visit, places to stay and delicious Ghanaian cuisine as well as a map to guide her in her travels.

Website accessed: Ghana Tourism website (<http://www.touringghana.com/>)

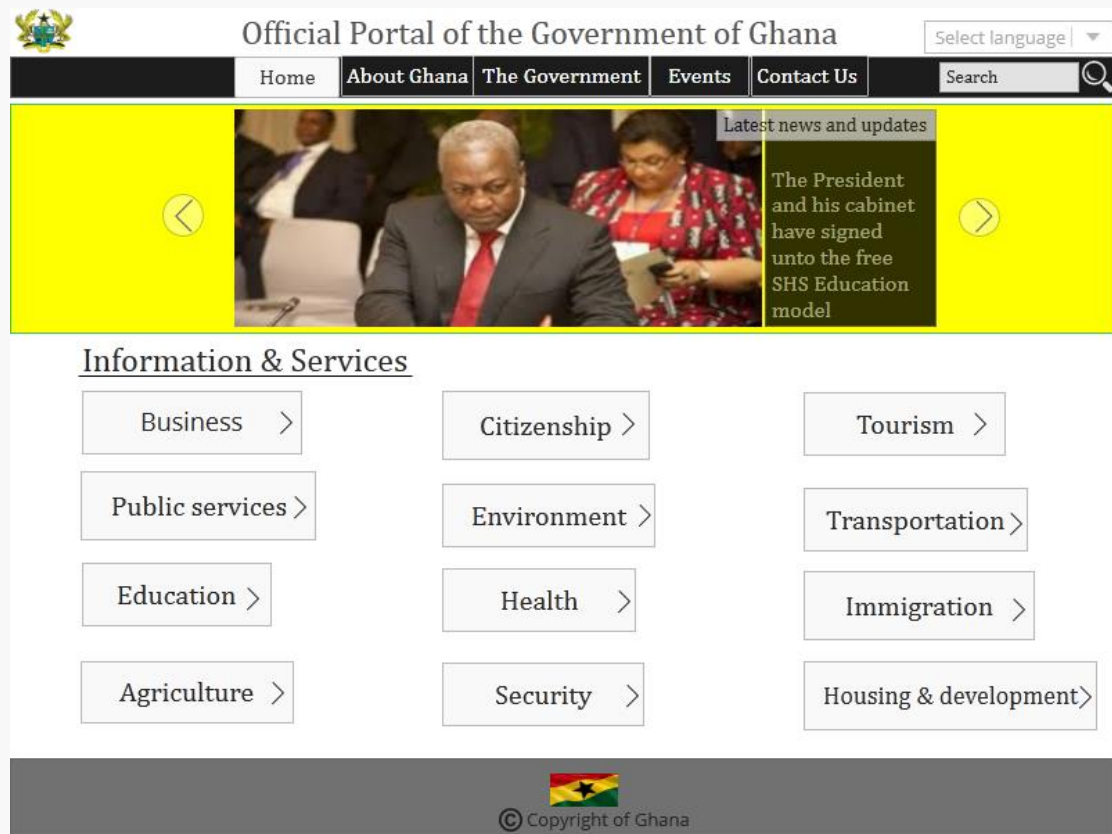
The information gathered from the user interviews which were designed into personas guided the design of the prototypes. Prototypes were created from user needs and tested to check for their viability. This will be analyzed in the next chapter in detail.

4.6 SYNTHESES FROM PROTOTYPE CREATING AND TESTING

Prototyping and testing are important aspects of the user centered design process or in determining user experience principles. The user-centered design process is made up of 6 stages; empathize, research, define, ideate, prototype and test. The research has already addressed the first four stages. This section talks about the final two stages. To check for the credibility of the user principles gained from the other forms of data collection methods, this research made use of prototypes and user testing. Prototypes were built with Indigo Studio version 2. The prototypes were designed based on the responses from the questionnaires and user interviews as well as recommendations from the SME interviews. The data was then used to design a government portal that seeks to address the needs of the users and ultimately improve user experience. To check for the viability of the prototype, a total of 10 randomly selected individuals were made to test the design. Through the testing it was identified that users were looking to find information fast and at a few clicks and it was necessary to maintain known web standards. Those issues were incorporated into the final prototype. However user experience design is not meant to satisfy every single user because as humans we are all

different. What works for one person may have an opposite effect on the other. The best way is to design for specific experiences and promote certain behaviors [28].

The prototypes created are included below;

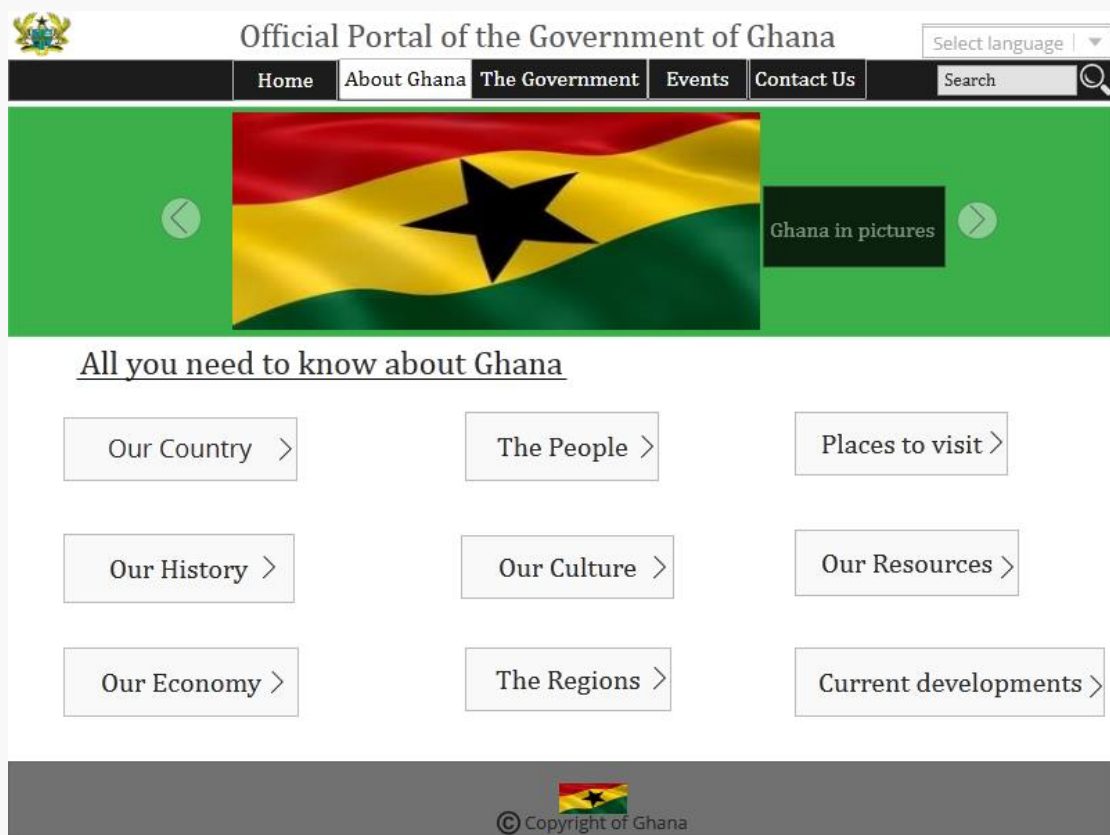


The interface above is the home page of the portal of the government of Ghana. This design made use of standard web design principles, data from the questionnaires, user interviews and recommendations from the SME's. The web standards incorporated here include placing the logo which in this case is the Ghana Coat of Arms on the top left corner of the page. Navigation is at the same place on each page and in this case uses active tab indication for navigation; the Home button is highlighted because we are on the home page. The search button is on the top right corner of the home page. The 'About Us' tab indicates information about any organization hence the About Ghana tab

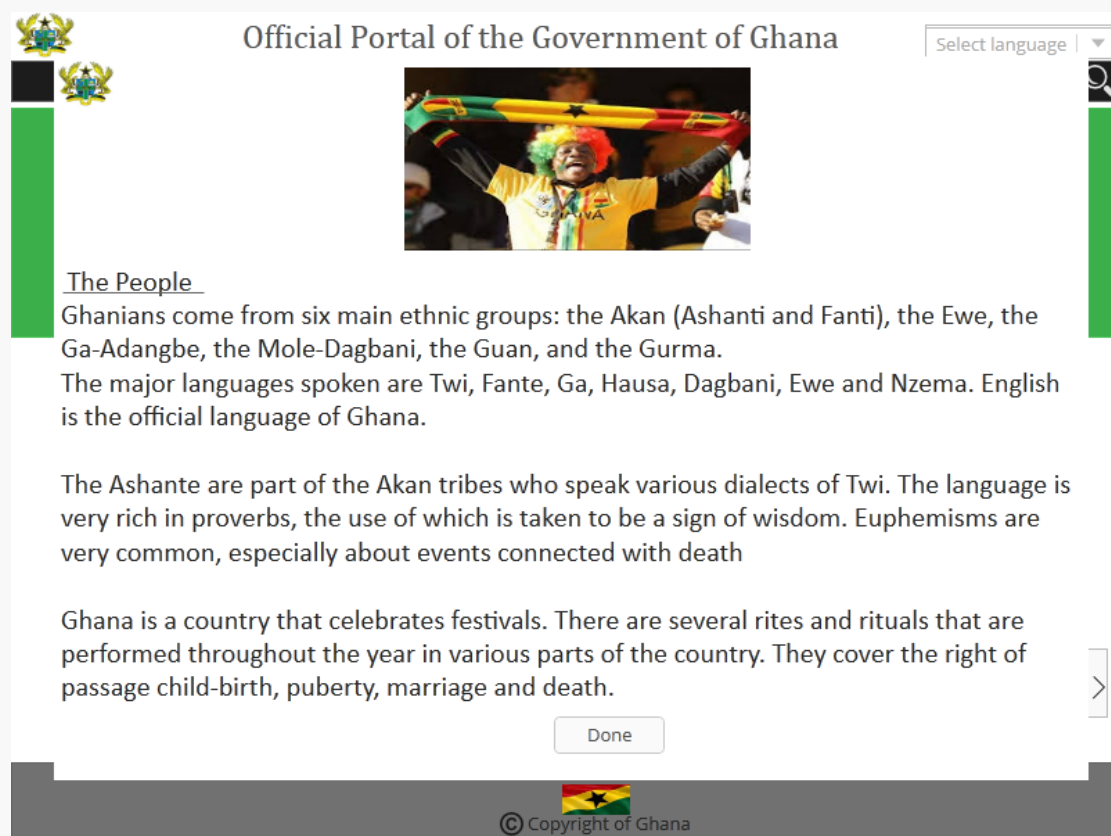
shows users can find information concerning the country. Aside these standard norms, the design incorporated responses from users on their needs and behavior patterns. The latest news and updates was put on the homepage because most of the respondents wanted to be able to view newsfeed or stay updated with what is happening in the country. In the survey findings 54% said the most important characteristic on a website was the ability to find information. Based on this, the prototype is intended to facilitate users to find information easily. Hence information important to users have been grouped according to tabs on the top page and in the middle section of the page. Under information and services, the first tab is business. This decision was arrived at because the survey showed that the government website with the most visits was the Bank of Ghana indicating that a lot of the respondents were interested in the business affairs of the country. When a user clicks on the 'Business' tab this is what they see:



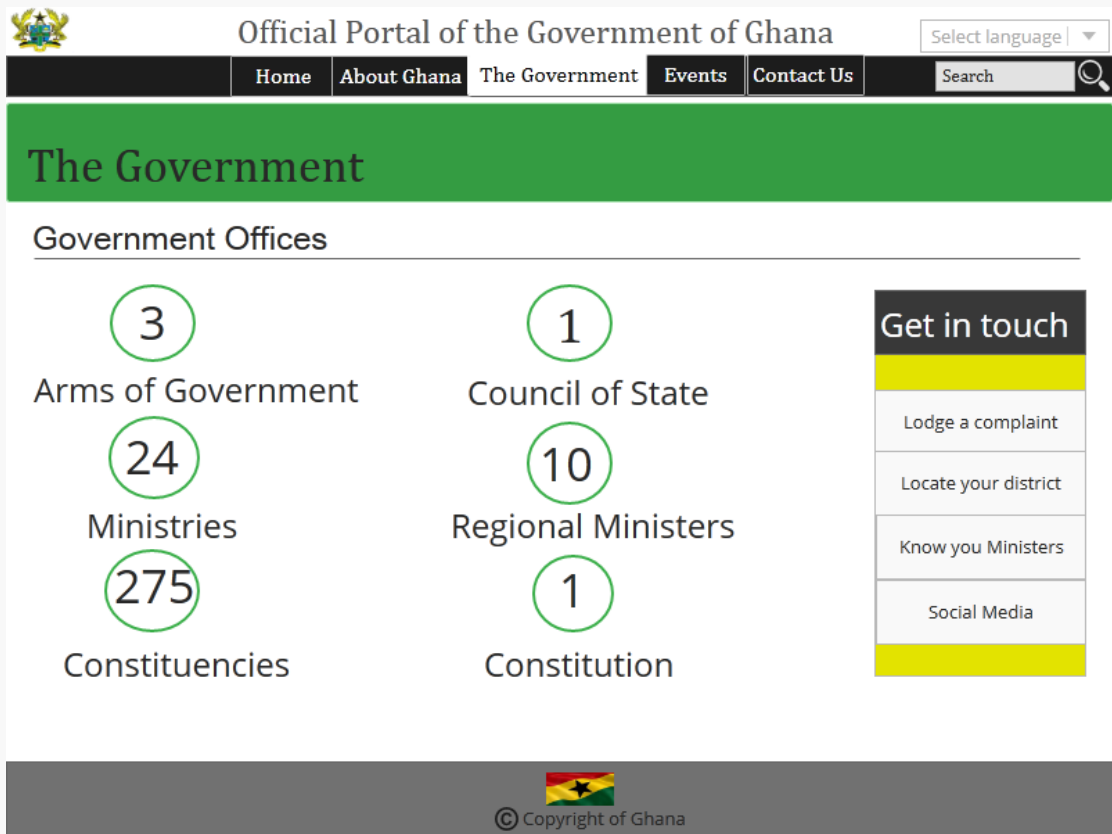
Through the user interviews and the surveys it was identified that more users wanted to be able to view information on GDP, exchange rates, Treasury bill rates, investment rates and the like. Such information was included in the Business section. For this research, portals were defined as a one stop online access to many government services with the website as the endpoint of it. As such the prototype was designed with various government departments and services as a sub division with the corresponding government ministry or department as the end point. Just like the business section above which links to the Ministry of Finance and the Bank of Ghana if the users want to find out more information. This was based on UK's government website design principle to do less; if someone else is doing it link to it. Other tabs like the 'About Ghana' tab when clicked, opens to the page below:



The tab labeled 'The People' when clicked shows a pop up which shows a short description of the people of Ghana as seen below. A pop up was considered as appropriate instead of opening unto a new page because during the prototype testing, users wanted to be able to go through fewer pages to arrive at the information they were looking for as this reduces the transaction costs for the user.



Another important tab is 'The Government' tab which is shown in the page below:



As per one of the personas described; Imisioluwa Okeke who needs the services of the Ghana Immigration Service to get a student permit had the following pages designed to represent her needs and that of many others she represents. When a user like her type goes unto the Immigration and Visa issues page, she will come across various sub sections of information relevant to immigration in Ghana. When she clicks on the 'Studying in Ghana' text field which is relevant to her needs, she will see a pop up showing all the information she needs pertaining to her getting a student permit.



Immigration and Visa Issues

Visiting Ghana

[Find out all you need to know about visiting Ghana](#)

Residing in Ghana

[Find out all you need to know about residing in Ghana](#)

Working in Ghana

[Find out all you need to know about working in Ghana](#)

Studying in Ghana

[Find out all you need to know about studying in Ghana](#)

Go back



Director of Immigration Service
COP Dr. Peter A. Wiredu
[Want more information?](#)



© Copyright of Ghana



Studying in Ghana

I To study in Ghana, you must attain a Student Permit

The following are requirements necessary for attaining a Student Permit

- . A letter of admission from a recognized and accredited institution in Ghana
- . Show proof of exemption or payment of required course fees
- . A valid travel document i.e passport, Ecowas travel document and student I.D card
- . Should prove evidence of financial support

E Cost Involved

F To attain a student permit, the individual must pay GHC100 (the equivalent of \$45)

E Renewal of Student Permit

Students seeking renewal should bring along

V i. A letter of application from school

ii. A completed application form

E iii. Four Passport size photographs

Renewal of permit is done every year.

. A standard fee of GHC 100 (\$45) is taken for renewal

S Note that charges apply should renewal of student permit be delayed (GHC30 for every month delayed)

E Operating Hours

The Office of Immigration is opened for registration from Mondays to Fridays between the hours of 8am to 2am

Kindly note that no document will be taken after 2pm.

Done



© Copyright of Ghana

The middle section on the Studying in Ghana pop up page was designed with white as the background to make reading the text easier for users of the site. It is important to create a contrast between a pages background and its text to aid reading.

As per the design principles of the UK government, the design as stated started with the needs of the people hence the surveys and interviews conducted. Data from research and from regular government activities was included in the design of the prototype. Also, it can be seen that the prototype reflects or shows only government services and nothing else. In the design, it was difficult to merge all government activities in one portal because there are so many of them and that was the challenge faced in designing this portal. In all the screens included, there is consistency no matter what section it falls under. This study made use of three distinct colors and rotated them throughout the design. Also certain features off the homepage were replicated in the other webpages to aid users with navigation. Another principle made use of here was the principle of building digital services not websites. This design enables users to find information but like a web branch does not end there but extends some services to the physical spaces of the government organizations. For example finding information on the immigration and visa page leads you to the office for further transaction.

The remaining pages and the interactive prototype is attached to this document.

CHAPTER 5– CONCLUSIONS AND RECOMENDATIONS

5.1 CONCLUSION

This research sought to find the user experience principles that go into the design of a government portal in Ghana. Based on the research questions the following were found:

What kind of information will users want to find on a government portal?

To answer this question, this research identified that most of the respondents in the selected sample size wanted to be able to find information on business activities in Ghana. This included information on exchange rates and Treasury bills. Aside the information already mentioned, there was interest shown for information on tourism, immigration and general information pertaining to government, its services and activities.

What kind of services will users want to find on a government portal?

From the surveys, interviews and prototype testing, it was identified that if government had to automate its services, users would most prefer it automated for value added services because it would be easier to access these services online. Services including: obtaining a driver's license, paying taxes, obtaining a business license, accessing government reports and documents as well as making general complaints and receiving assistance for those complaints were noted by users as important services that they would prefer online.

What structure has been put in place by the government or government website developers to ensure a user centered Ghanaian government portal?

Currently, there is no standard for how government websites should be designed. However, the government in conjunction with the National Information Technology Agency which is the policy implementing arm of the Ministry of Communication [32] is currently working on one. This should help standardize and create consistency in government websites.

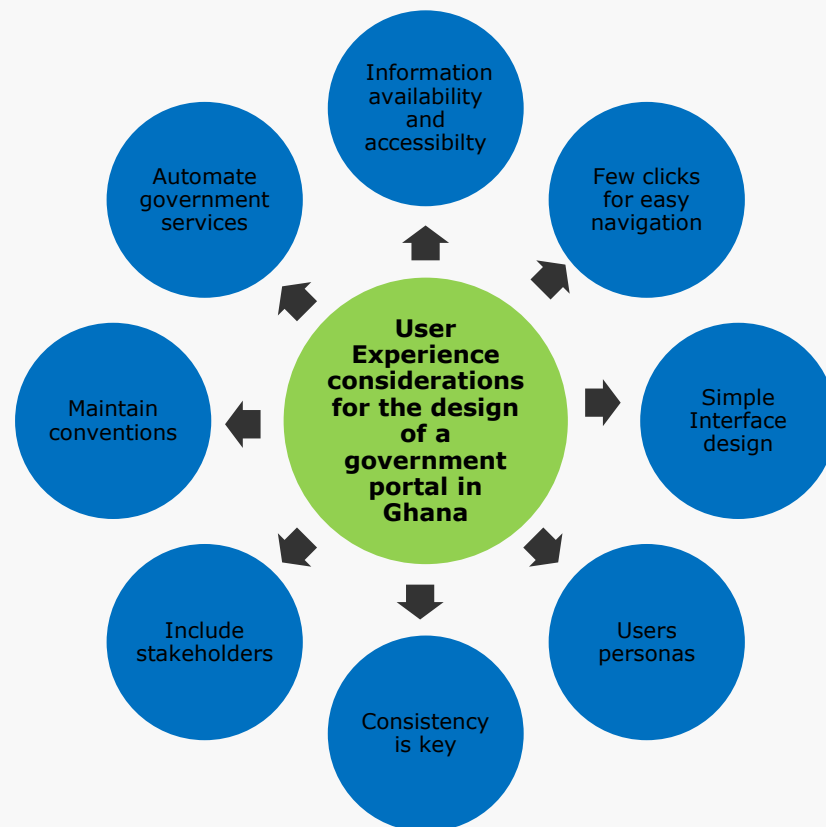
Which other groups of people will be interested in visiting a Ghanaian government website and how can the needs of these different groups be met on a Ghanaian government portal?

Pertaining to this question, it was interesting to find out from the survey of respondents that use government websites in Ghana that, 94% of the respondents were Ghanaians; the other 6% were non-Ghanaians. It is assumed that, the non-Ghanaians were tourists and investors and although they form the minority of the users of government websites, their needs have to be addressed. If the group consisting of non-Ghanaians falls under tourists and investors then information on tourism and investment must be easily available especially because these are areas that contribute to the development of the nation.

Which user experience principles are most relevant in designing a Ghanaian government portal?

To answer the research question of which user experience principles are most relevant in designing a Ghanaian government portal, it was

deduced from this research which included data from users, subject matter experts and data from prototype testing that these are the design principles that are most relevant:



- **Make information available and accessible:** This relates to the objectives of an E-government system as discussed by Nik van Dam, Vanessa Evers and Florann A. Arts [9]. According to these authors, making information available and accessible online enables citizens to participate in the knowledge society, enhance relationships between citizens and the state, as well as strengthen democratic processes in institutions [9]. In relation to one of the design principles used by United Kingdom's Government website²

² www.gov.uk

which requires that government websites start by providing user needs not government needs, it was found that, 60% of respondents from the research survey considered it most important to use government websites to find information. This shows the relevance of making information that users need available on government websites. Therefore, in order to make a government portal user centered in Ghana, it must make information easily accessible. Although making the information accessible is important, information must conform to the values in the honeycomb hexagon.

- **Few clicks for easy navigation:** Internet users do not like to spend time looking for information on websites. As such, the design should provide easy navigation and be intuitive. Users should be able to click a few times and get results. The transaction cost of the user should be minimal to ultimately increase the user's experience.
- **Very simple interface (Less is more):** This is one principle that was adapted from United Kingdom's Government website for the design of the prototype that was developed during this research. From prototype testing, it was found that, users preferred a less clustered website because it made it easier to find information they were looking for. However, since the government has a lot of information that they would like to provide on a portal, there is the challenge of designing an interface that provides all the relevant information with a simple interface that would make it easy for users to access information easily. This challenge is similar to what the literature presented about the difficulty in making a website

interface simple, especially when the underlying systems are complex [36]. It was important the design had to be very simple with a clean interface. This aids information accessibility and easy navigation.

- **Get personal with the users; personas help:** The only way to build a portal that satisfies the needs of users is by being user centered. Personas offer a precise way of thinking and communicating how users behave, think, what they wish to accomplish, and the reasons behind what they want [30]. It is necessary for website developers to be aware that, although using personas captures specific needs of users, it is a representation of a larger group of people with similar needs. This is because, information about user needs informs developers to design websites that provide optimum user experience. In marketing there is a saying that if you target everyone you target no one. Therefore, personas help to identify the needs of a larger group of people by being specific.
- **Maintain conventions:** In Ghana, where 17.1% are Internet users, it is important for website designers to maintain the universal web standards that these internet users already know. Trying to reinvent the wheel, and create new web standards may take a longer time for these current internet users become familiar with them, much more those who are now becoming familiar internet usage. As such, maintaining web standard is vital.
- **Convenience is key; automate government services:** Since people do not want to waste time looking for information,

government needs to consider automating its services such as obtaining a passport, an international student permit, and registering a company. This provides “greater flexibility” [9] for users and reduces the number of activities that occur in the physical space of the government organization.

- **Stakeholders should not be forgotten:** The major stakeholders of government websites are the various government organizations and officials. Since they control the inflow and outflow of information and decide how much information should be made public, government organizations whose services are automated on government websites should be consulted when designing a government portal. However their views should not be highly esteemed over that of users.
- **There should be a set standard; consistency is key:** Currently, all government departments are entitled to their own set of principles when designing a government website for their department. The lack of a set of standards means there is no consistency in design (interface, content management). All government MDAs should have a uniform web presence since this makes it easy for users to easily identify with Ghanaian government website or portal.

5.2 OTHER RELEVANT FINDINGS

Also another vital point that came up during this research was the fact that designing a user centered government portal is more tedious since a lot of time and money must go into achieving this result. The various steps in the design process are necessary to ensure that user needs are

truly satisfied. This gave an understanding to the main reason why some government websites are not user centered which is: the rigorous process involved in determining the needs of users, which requires money and time which I believe the government does not give precedence to.

Also from the SME interviews, it was identified that the various government ministries had different definitions of who a 'user' of a website is. One of the respondents from the SME interviews stated that a 'user' is someone who adds content on the website and can go a step further in terms of updating content on a website. Usually these users work in government institutions. He stated however that, the people who access the website are considered as 'the public' not 'users'. The variation in who an actual user is contributes to the differences in how government websites are designed and the information put on there.

This research found that, some of the SME/web developers who design government websites consider the needs of the government organization as priority over that of the users. In some instances, SME's cater to the needs of the government organization first. Also they determine the amount of information they can make public.

Another very interesting finding was that, government websites replicate the structure of an organization's activities in real life unto the website. As such, websites are viewed as web branches which represent an extension of services offered in the actual offices. Now web branches are meant to talk about your business and conduct business activities efficiently. Now it is important that current government web portals are

not just seen as informational pages but portals where actual transactions can take place and users can get access to value added services.

It is possible to have a central government portal in Ghana. However, issues on the ground such as cost involved in developing the site, the fact that government officials do not have the required skills, as well as the bureaucratic processes involved prevent this from happening now. From the survey conducted in this research, the SME's who worked on government websites spoke about how the government organizations are hesitant to do things differently. The government organizations prefer the normal ways of doing things instead of being innovative. They are more self-centered than customer centered (user-centered). To sum everything up, government websites must be modern in terms of design and futuristic in terms of functionality.

5.3 RECOMMENDATIONS

This section will discuss a few recommendations that were discovered from this research. Here are a few recommendation aside the principles stated in the above section:

- User experience considerations are relevant for a successful E-government system through a portal for the Ghanaian government. User experience considerations ultimately improve the efficiency and effectiveness of the government through enhanced services. Identifying and addressing the needs of users facilitates the purpose of an E-government system. It is apparent that the existing government websites are not considering what users need, hence the poor design and low patronage. If the

government decides to invest in user experience principles they benefit in two ways; the users gain more value from accessing the websites. Secondly, the government is able to render services to citizens (G2C) in a more convenient, efficient and effective manner.

- Government must come up with a set of standards to ensure that all government agencies are consistent and uniform in the mode of information transmission via a portal.
- Although this research has determined a set of user principles for designing a government portal, it must be noticed that the only way to find the needs of users for government websites is through research. Capturing the needs of a user or designing for an experience can be determined by walking in the shoes of the user, which can be achieved through research.

APPENDIX

The User Experience Honeycomb by Peter Morville



The hexagons in the honeycomb signify what users must gain from a website.

Questionnaire used in research

Survey on Government websites

This is a survey to find out services and functionalities required on a government website in Ghana by the users

* Required

*What is your nationality? **

This is a required question

*What is your profession? **

E.g banker, engineer, student

This is a required question

*What age group do you fall under? **

- ☐ ☐ 10-20 years
- ☐ ☐ 21-30 years
- ☐ ☐ 31-40 years
- ☐ ☐ 41-50 years
- ☐ ☐ 51-60 years
- ☐ ☐ 60 years and above

Must select exactly 1 options.

This is a required question

*Do you use the Internet? **

- ☐ ☐ Yes
- ☐ ☐ No

Must select exactly 1 options.

This is a required question

If no, kindly move to question 14

This is a required question

*If yes, which of the activities listed below do you regularly use the Internet for?
Kindly choose the top 3 activities **

- ☐ ☐ Receiving and sending emails
- ☐ ☐ Reading news articles
- ☐ ☐ Research
- ☐ ☐ Information finding
- ☐ ☐ Social Networking

Must select at most 3 options.

This is a required question

*How often do you use the Internet in a week? **

- ☐ ☐ Once

- ☐ ☐ 2-3 times
- ☐ ☐ Everyday
- ☐ ☐ Never

Must select exactly 1 options.

This is a required question

*Have you visited any Ghanaian government website before? **

- ☐ ☐ Yes
- ☐ ☐ No

Must select exactly 1 options.

This is a required question

If no, can you give reason for this?

Must be at least 0 characters.

This is a required question

*If yes, select the ones you have accessed before in the options provided below **

Accessed here means visited the site, performed some form of activity like looking for information, searching for a contact, etc

- ☐ ☐ www.ghana.gov.gh (Government of Ghana Official Portal)
- ☐ ☐ www.eservices.gov.gh (Ghana E-Services Portal)
- ☐ ☐ www.bog.gov.gh (Bank of Ghana)
- ☐ ☐ <http://www.gra.gov.gh/> (Ghana Revenue Authority)
- ☐ ☐ <http://www.ghanaimmigration.org/> (Immigration Service)
- ☐ ☐ <http://www.fdaghana.gov.gh/> (Food and Drugs Authority)
- ☐ ☐ <http://www.touringghana.com/mot.asp> (Tourism, Culture and Creative Arts)
- ☐ ☐ <http://www.nca.org.gh/> (National Communications Authority)
- ☐ ☐ <http://www.moe.gov.gh/> (Education)
- ☐ ☐ <http://www.energymin.gov.gh/> (Energy and Petroleum)
- ☐ ☐ <http://mlqrdghanagov.com/> (Local Government and Rural Development)

- ☐ <http://www.moh-ghana.org/> (Ministry of Health)
- ☐ <http://www.ecgonline.info/> (ECG)
- ☐ police.gov.gh (Police Service)
- ☐ <http://www.gsa.gov.gh/home/> (Ghana Standards Authority)
- ☐ <http://gipcghana.com/> (Ghana Investment Promotion Centre)

This is a required question

*How will you rate 3 of the websites you visited in terms of your user experience (where user experience is a deep understanding of you the user, what you need, what you value, your abilities, and also your limitations) ? **

Name of website 1

This is a required question

*Website 1 **

1 2 3 4 5

Poor  Excellent

This is a required question

Name of website 2

This is a required question

Website 2

1 2 3 4 5

Poor  Excellent

This is a required question

Name of website 3

This is a required question

Website 3

1 2 3 4 5

Poor  Excellent

This is a required question

*Which of these characteristics on a website is MOST important to you? **

- ☐ Aesthetics (e.g attractiveness, beauty)
- ☐ Perform Transactions successfully
- ☐ Ability to navigate the page
- ☐ Ability to find information easily

Must select exactly 1 option.
This is a required question

*What was the aim/goal of accessing any of the government websites you selected ? **

Basically why did you access the website or what information were you looking for on the website?

This is a required question

*If you were to constantly visit any government website what will you like to see on the website? **

For example I want to see more of this, less of that, this type of information, etc

This is a required question

*What services will be most convenient to you if you could conduct them online. Select 5 of the services listed below **

- ☐ Payment of taxes (automated)
- ☐ Registering and renewing drivers' license
- ☐ Getting a license for a business
- ☐ Access to government reports and documents
- ☐ Employment issues
- ☐ Citizenship and living in Ghana
- ☐ Ecommerce activities (Buying and selling of goods or services)

- ☐ ☐ Making complaints and receiving answers
- ☐ ☐ Other:

Must select at most 5 options.
This is a required question

Okay you are almost done with the survey. Just a few more questions to answer.

This is a required question

*Do you own/use a mobile device? **

- ☐ ☐ Yes
- ☐ ☐ No

Must select exactly 1 options.
This is a required question

*If yes, select the MOST FREQUENTLY used among the listed mobile devices below **

- ☐ ☐ Smartphone
- ☐ ☐ Tablet

Must select exactly 1 options.
This is a required question

*For the mobile device you have chosen please select one activity it is being used for regularly **

- ☐ ☐ Sending and receiving emails
- ☐ ☐ Browsing on the Internet
- ☐ ☐ Reading news articles
- ☐ ☐ Searching for information

Must select exactly 1 options.
This is a required question

*Do you use your mobile device to access government websites? **

- ☐ ☐ Yes
- ☐ ☐ No

Must select exactly 1 options.
This is a required question

*If no, kindly give a reason for this **

This is a required question

*What is your opinion on Ghanaian government websites? **

Look at this as a user of these websites. What will you like/not like to see, what do you wish to be on there, etc

This is a required question

Submit

100%: You made it.

Never submit passwords through Google Forms.

Powered by  Google Drive

This content is neither created nor endorsed by Google.
[Report Abuse](#) - [Terms of Service](#) - [Additional Terms](#)

[Edit this form](#)

Below is a link to the actual web page.

<https://docs.google.com/forms/d/178tqNuruE8vqIIIFHuzRgq6KWhINhSv2b3yaaNNYqTk/viewform>

Transcription of an interview

Interview session with Evans Kwabena Attafuah of Rancard Solution on his work done on the Ghana National Petroleum website

Interviewer: What is your profession?

Mr. Attafuah: User Experience Engineer. I build applications; I design the interfaces and do the usability testing.

Interviewer: Tell me about the government website you worked on?

Mr. Attafuah: National Petroleum Website

Interviewer: What part did you play in developing the website?

Mr. Attafuah: I developed the interface for the Content Management System (CMS) and backend where they go in and put in the petrol prices and the exchange rate and things like that.

Interviewer: So you didn't do any front-end work?

Mr. Attafuah: I did front end; the website itself, the design of the website and then the content management.

Interviewer: Can you tell me about the procedures taken in developing such websites and are there a set of principles/standards for designing such websites?

Mr. Attafuah: Well, there's no standard. It's not like they have a sheet or something that you have to follow. There's no standard I don't know if it's now that they are developing the standards or some other institution will have the standard; I don't think they are any standards.

Interviewer: Is there consideration for what the users want when developing such websites and if yes, what considerations are those?

Mr. Attafuah: Well I considered that because most of their users will be basically petrol, shell, filling station attendants and so forth. What we actually did was we made it with a lot of menus on the website, so what we had to do was we had to put like the obvious ones and then the rest of them as drop down menus.

Interviewer: How did you go about knowing what the users want on such a website?

Mr. Attafuah: So with their website, there is no sort of usability test; they don't give you clients to call to ask about. So you mostly have to do your research online. It's not like there's a process where you interview a few people or call a few people to talk to them and ask them how they will use the website; there was nothing like that.

Interviewer: So you basically found out about the people who are going to access the website? Did you consider demographics such as age, gender, Internet literacy such things?

Mr. Attafuah: No

Interviewer: Are you aware of the current state of government websites in Ghana?

Mr. Attafuah: Hmm, I was allowed to look at, uhm what's it called? Tourism, Ministry of Tourism. My aunt showed it to me because she works there and she told me about how they had to go through a three-day tutorial on how to manage the website. So that's the only thing I think I'm familiar with

Interviewer: I just wanted to get your take on it. You know when you look at the government websites, there are a lot of them not one central platform, I don't know if you have seen the gov.uk one?

Mr. Attafuah: No

Interviewer: Ok so they have one central platform for all government services unlike in Ghana where you have Ministry of Finance different from the others.

Mr. Attafuah: I think the embassy websites is similar to this. The US embassy has just one website and just have /gh to show which country it is from.

Interviewer: Since you have worked on a government portal; I will like to know if you had an idea why there is not one central platform but several segmented ones?

Mr. Attafuah: First of all I think it's because they don't perform any tests; most of the time they don't have enough information they just want to put up the website because they are supposed to. There's no process, actually no one has actually gone through a process and there is no institution set up to take care of online activities concerning website or how users are using such websites

Interviewer: In your opinion, do you think that having several websites is better than having just one central platform?

Mr. Attafuah: Ok when it comes to the government they have a lot of information and so having one central platform won't solve any problem right but this is the catch they can have one central location on different domains but the things is it has to be well managed by an institution or a company so that there is no duplication of information because to some level there will be some form of repetition of data

Interviewer: So one central location different domains. My thesis is looking into having one central government portal for example gov.gh where all other governmental departments are linked to or can be found on such a website

Mr. Attafuah: Not a bad idea but personal opinion I still feel the separation is needed because of the information the government is dealing with

Interviewer: From your end as a developer, were you restricted on the amount of information you were allowed to put on such a website for public viewing and accessibility?

Mr. Attafuah: Well in my case all the information given me was supposed to be put on the website. There was nothing internal.

Interviewer: I am also looking at how the government can incorporate ecommerce activities on their websites? For example automation of services like registering a vehicle online, or voting or getting a driver's license or to be able to pay taxes on a government portal.

Mr. Attafuah: That's needed in the type of system we run here. It's needed so badly. We actually need a system for all national ID's where they are all accessible online and so you can always pull up your profile when needed to fill all your forms that require the same information/duplication like what Facebook does. We really need it

Interviewer: Have you observed anything like this one on any government website so far?

Mr. Attafuah: No I heard something about them doing this for company registration it will make sense if we had that

Interviewer: Back to National Petroleum website did they have plans of incorporating ecommerce activities on their website?

Mr. Attafuah: No there were no plans

Interviewer: What of the future?

Mr. Attafuah: No not that I know of. Most of the stuff that we put on their website was as I said earlier was petrol prices and lot of documents for the distributors of petrol and so there was just a bunch of them put in different section and there was also news on petrol prices and government regulations

Interviewer: Constraints you faced on developing such a website?

Mr. Attafuah: Communication was terrible

Interviewer: Between who and who?

Mr. Attafuah: Well I didn't do a lot of communication with them because there was a middleman a marketing person who communicated with them and brought back information. But it always a problem trying to get information in and out and since we build a CMS we had to go in there to teach them how to use a portal and they weren't ready to adjust to technologies and that made it difficult for us

Interviewer: So on a wider scope does the users' ability to use technology a problem when designing these websites

Mr. Attafuah: I can't say for the general public because for national petroleum most of their clients are well to do and so they have to afford

Internet services but I mean if you look at one of the public institutions their access to Internet is not so high and as such users will not be so technology literate.

Interviewer: Can we go back to your findings on user preference on this website. How were you able to determine what the users want on this website? Can you explain further for me?

Mr. Attafuah: Ok this is from my personal experience and a lot of online research. So if you take a website like National Petroleum, first you look at as you said the demography, say how many filling stations the person has, how often the person is going to buy petrol, how trucks that's important as well. So these are some of the things I took into consideration when designing the site. Like I already said, even though the website is to serve a high clientele; they have money. The thing is they are not really tech savvy most of them are basically making phone calls and the like. So it has to be easy to use. Although they had some level of education in using the Internet but once they navigate the Internet they know they are supposed to click and so you have to design in such a way that makes it so easy for them to know when to click. We had a very simple menu and if you wanted extra information, it has a drop down you have to click. Apart from that there was a big banner where they had news items where you can easily click to get all the information you want. We also had what we called a pagination; you don't show them all the information, you break it down so they can be able to click. These are some of the user experience considerations we used on the site.

Interviewer: Do you as a UX designer have your own set of principles you followed when designing the National Petroleum website?

Mr. Attafuah: On this particular website I will say no but there are principles you will have to follow when designing websites

Interviewer: In your opinion when remodeling a government website what advice will you give me

Mr. Attafuah: First of all you have to know the users; actually know the users. Are these people going to use the website, what type of phones do they use, are they male or female, do they have access to Internet. Also what sort of information will they be communicating back to the particular institution? For instance are they going to be asking questions, do they need to find out when their National ID is going to be ready, do they need to find out about some information they put there some few months ago.

Interviewer: By means of communication you mean emailing, calling...?

Mr. Attafuah: By emailing or going on the website to get some information. Any of these activities.

Interviewer: We seem to have exhausted all the questions. One last thing though, can you refer me to anyone who has worked on any government website?

Mr. Attafuah: Hmm. I don't know. That's the thing most of government departments they don't really care about all these things so they just give out the contract to some people to put up the website. No usability testing, nothing. But this is what I will say, you can interview any developer that has built a website or an application with some user experience feedback. Then you can apply to what you are working on. It has hard to actually find people who have built government websites. Probably the contract passed through about six faces before it got to the developer and so has no proper idea of what he has to do.

Interviewer: Thank you so much for your time.

Mr. Attafuah: My pleasure.

*This interview was transcribed by the interviewer: Abigail Sefakor Dzomeku

Bibliography

- [1] Meelis Kitsing. (2010, September) An Evaluation of E-Government in Estonia.
- [2] Group Miniwatts Marketing. (2013, November) Internet World Stats; Usage and Population Statistics. [Online].
<http://www.internetworldstats.com/stats.htm>
- [3] Oxford Business Group, "The Report Ghana 2012," Ghana, 2012.
- [4] Emile Aarts and Stefano Marzano, *The New Everyday: Views on Ambient Intelligence.*: 010 Publishers, 2003.
- [5] The world bank group. (2011) The World Bank. [Online].
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/EXTGOVERNMENT/0,menuPK:702592~pagePK:149018~piPK:149093~theSitePK:702586,00.html>
- [6] The World Bank Group. (2011) The World Bank. [Online].
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/EXTDEVELOPMENT/0,contentMDK:21326015~pagePK:148956~piPK:216618~theSitePK:559460,00.html>
- [7] Usability.gov. (2013, November) Usability.gov. [Online].
<http://www.usability.gov/what-and-why/user-centered-government.html>
- [8] Presidential National Commision on Information Society and Development. Presidential National Commision on Information Society and Development. [Online].
<http://www.pnc.gov.za/index.php/e-government/why-is-e-government-important>
- [9] Nik van Dam, Vanessa Evers, and Florann A Arts. Cultural User Experience Issues in E-Government: Designing for a Multi-Cultural Society.
- [10] Adesegun Oyedele and Kai S Koong. Framework for Evaluating Global E-Government Websites.
- [11] Adesegun Oyedele and Kai S Koong, "Framework for Evaluating Global E-Government Websites," Saudi Arabia, 2011.

- [12] Yih-Jeou Wang, Gwendolyn Carpenter, Marco Daglio, and Jeremy Millard, "OECD e-Government Studies. Rethinking e-Government Services. User-Centred Approaches," 2009.
- [13] OECD, "Rethinking e-Government Services User Centred Approaches," France, 2009.
- [14] Robin Gauld and Shaun Goldfinch, "E-government: What Is It, and Will it Transform Government," University of Otago, Quarterly Report Volume 2, Number 2, 2006, 2006.
- [15] Emilie Chalcraft. (2013, April) Dezeen Magazine. [Online]. www.dezeen.com/2013/04/16/gov-uk-government-website-wins-design-of-the-year-2013
- [16] H Korsten and T.J.D Bothma, "Evaluating South African government Websites: methods, findings and recommendations (Part 1)," *South African Journal of Information Management*, vol. 7, pp. 1-10, June 2005.
- [17] The World Bank Group. (2014) The World Bank. [Online]. data.worldbank.org/country/ghana
- [18] Ghana Government. (2011) eServices, Services Portal of the Government of Ghana. [Online]. www.eservices.gov.gh/NITA/SitePages/NITA-Home.aspx
- [19] Tony A Bediako, "eGhana Project," in *eGhana Project ITAG Conference*, Accra, 2012.
- [20] Imani. (2014, February) IMANI Center for Policy & Education. [Online]. <http://www.imanighana.com/2014/02/imani-2013-internet-presence-rankings-of-government-institutions/>
- [21] Edgar Napoleon Asimwe and Nena Lim. (2010) Usability of Government Websites in Uganda.
- [22] usability.gov. (2013, December) Usability.gov. [Online]. www.usability.gov/what-and-why/user-experience.html
- [23] Semantic Studios. (2014) Semantic Studios. [Online]. <http://semanticstudios.com/about/>
- [24] Gov.UK. (2012, July) Gov.UK. [Online]. <https://www.gov.uk/design-principles>

- [25] Government Digital Service. (2012, July) Government Digital Service Design Principles. [Online]. www.gov.uk/design-principles
- [26] Greg Guest, Emily E Namey, and Marilyn L Mitchell, "Qualitative Research Defining and Designing," in *Collecting Qualitative Data.*: Sage Publications, Inc, 2013, pp. 1 - 5.
- [27] Abraham S Fischler. Writing Chapter 3: Methodology.
- [28] Jacob Gube. (2010, October) Smashing Magazine. [Online]. <http://uxdesign.smashingmagazine.com/2010/10/05/what-is-user-experience-design-overview-tools-and-resources/>
- [29] Alan Cooper, Robert Reimann, and Dave Cronin, *About Face 3. The Essentials of Interaction Design*. Indianapolis: Wiley Publishing, Inc, 2007.
- [30] Alan Cooper, Robert Reimann, and Dave Cronin, *About Face 3. The Essentials of Interaction Design*. Indianapolis: Wiley Publishing, Inc., 2007.
- [31] Peter Conradie. (2008) Introduction to Good Usability.
- [32] NITA. National Information Technology Agency. [Online]. <http://www.nita.gov.gh/about-us>
- [33] W3C. (2012) W3C. [Online]. <http://www.w3.org/Consortium/>
- [34] Irimi Fundulaki. W3C: Technologies and Standards for the World Wide Web. [Online]. <http://www.w3c.gr/docs/INNOVA-W3C.pdf>
- [35] Jacob Gube. (2010, October) Snashing Magazine. [Online]. <http://uxdesign.smashingmagazine.com/2010/10/05/what-is-user-experience-design-overview-tools-and-resources/>
- [36] Gov.UK. (2012, July) Gov.UK. [Online]. <https://www.gov.uk/designprinciples>
- [37] Neeta Verma, Lokesh Joshi, and Sonal Kalra. (2013, September) Guidelines for Indian Governement Websites. [Online]. <http://web.guidelines.gov.in/#&panel1-1>
- [38] Meelis Kitsing, An Evaluation of E-Government In Estonia, September 16-17, 2010.
- [39] Dov Te'eni, Jane Carey, and Ping Zhang, *Human Computer Interaction: Developing Effective Organizational Informations*

Systems. United States of America: John Wiley & Sons, Inc., 2007.

[40] Mike Kuniavsky, *Observing the User Experience*. United States of America: Morgan Kaufmann Publishers, 2003.

[41] David Travis, *The Fable of the User-Centred Designer.*: Userfocus, 2009.

[42] Marcin Treder. (2012, August) Smashing Magazine. [Online].
<http://uxdesign.smashingmagazine.com/2012/08/29/beyond-wireframing-real-life-ux-design-process/>

[43] Stuart J Barnes and Richard Vidgen. Interactive E-Government: Evaluating the Web Site of the UK Inland Revenue.

[44] Qualitative Research.

[45] Avangate. (2014) Avangate Choosing the right color for your website. [Online]. <http://www.avangate.com/avangate-resources/article/color-web-site.htm>